

#4

Access DB#

162479

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 8-10-2005
 Art Unit: 1752 Phone Number: 302-1333 Serial Number: 101671, 948
 Mail Box and Bldg/Room Location: Rem. 9D60 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Plz. see Bib.

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Ctr.

Inventors (please provide full names):

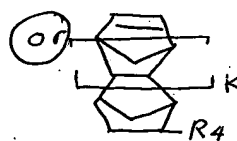
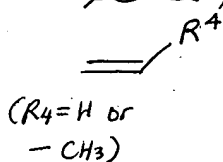
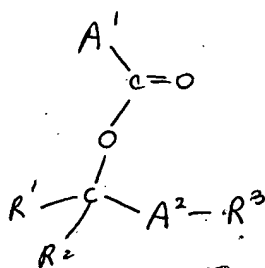
AUG 12 RECD

Pat. & T.M. Office

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

_____ Please search for the following α_n compound or the polymer that is formed from the compound



$R^1 \neq R^2 = \text{each}$

represents
 straight, branched or cyclic
 monovalent hydrocarbon gp. of
 1-10 carbon atoms

or $R^1 \neq R^2$ may bond together
 to form an aliphatic hydrocarbon
 ring with the carbon atom to
 which they are bonded.



$R^3 = H$ or straight, branched
 or cyclic monovalent hydrocarbon
 gp. of 1-10 carbons which
 may contain a hetero atom

TAFF USE ONLY

Type of Search

Vendors and cost where applicable

Searcher: <u>ELP</u>	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>8-30-05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Searcher Prep Time: _____	Patent Family _____	WWW/Internet _____
Search Time: _____	Other _____	Other (specify) _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sim J. Lee Examiner #: 76060 Date: 8-10-2005
 Art Unit: 1752 Phone Number 302-1333 Serial Number: 101621, 948
 Mail Box and Bldg/Room Location: Rem 9D60 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched.
 Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

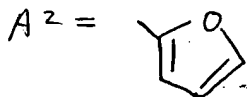
Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

— Please search for the compound shown on the previous page or the polymer that is formed from the compound

* (every other variables stays the same) except that

**STAFF USE ONLY**

	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Critical Prep Time: _____	Patent Family _____	WWW/Internet _____
Offline Time: _____	Other _____	Other (specify) _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Stn J. Lee Examiner #: 76060 Date: 8-10-2005
 Art Unit: 1752 Phone Number 302-1333 Serial Number: 101671, 948
 Mail Box and Bldg/Room Location: 9D60 Results Format Preferred: (circle) PAPER DISK E-MAIL
(Rem.)

If more than one search is submitted, please prioritize searches in order of need.

 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

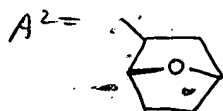
Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

- please search for the compound shown
 on the previous page or the polymer
 that is formed from the compound.

* Every variables stays the same
 except that)

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AFF USE ONLY

Type of Search

Vendors and cost where applicable

her: _____	NA Sequence (#) _____	STN _____
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Completed: _____	Litigation _____	Lexis/Nexis _____
er Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
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Time: _____	Other _____	Other (specify) _____

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L1	STR
L2	STR L1

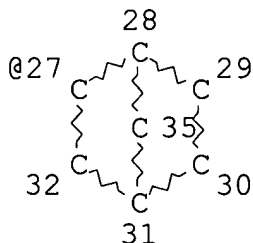
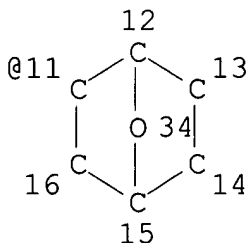
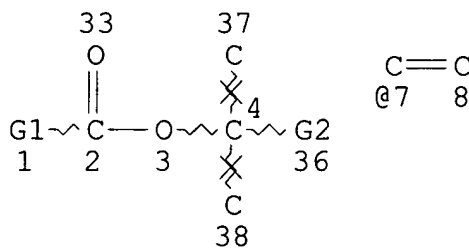
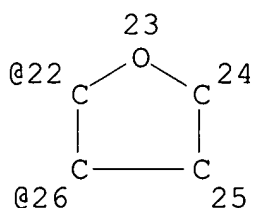
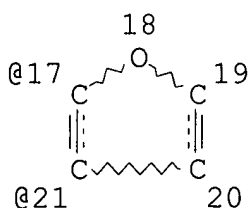
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L4 109 S L2 FUL
 SAV L4 LEE948A/A

L5 O S L4

L6 40 S L4

=> d 14 que stat

L2 STR



VAR G1=27/7
VAR G2=17/21/22/26/11
NODE ATTRIBUTES:
NSPEC IS RC AT 37
NSPEC IS RC AT 38
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE
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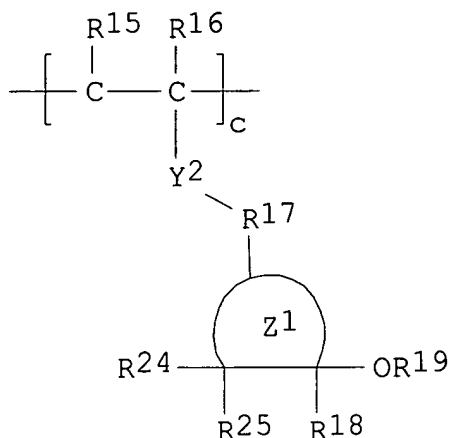
109 ANSWERS

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FILE 'ZCAPLUS' ENTERED AT 17:12:20 ON 30 AUG 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

=> d l6 1-40 cbib abs hitstr hitrn

L6 ANSWER 1 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2005:445341 Document No. 142:490394 Acrylic polymers for chemically
amplified positive photoresists, and method for pattern formation
using them. Hatakeyama, Jun; Harada, Yuji; Kawai, Yoshio (Shin-Etsu
Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
2005133066 A2 20050526, 56 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2004-215907 20040723. PRIORITY: JP 2003-350143
20031008.

GI



I

AB The polymers have repeating units of (A) [CHR2CR1[CO2CR3R4(R5R6)]]a and (B) [CHR8CR9[Y1R10R23R11CR12R13(OR14)]]b and/or I [R1 = H, Me, CH2CO2R7; R2 = H, Me, CO2R7; R3, R4 = C1-10 hydrocarbyl, R3 and R4 may link together to form an aliph. hydrocarbon ring with connecting C; R5 = furandiyl, tetrahydrofurandiyl, and oxanorbornanediyl; R6 = H, C1-10 hydrocarbyl; R7 = H, C1-15 alkyl; R9, R16 = H, Me, CH2CO2R7; R8, R15 = H, Me, CO2R7; R10, R11, R17 = single bond, C1-4 alkylene; R12, R13 = trifluoromethyl, Me, R12 = R13 .noteq. Me; R18 = F, trifluoromethyl; R14, R19 = H, acid-labile group; R23 = (O-, S-contg. bridged) C4-20 cyclic alkylene; R24, R25 = H, F; Z1 = (O-, S-contg.) C4-12 bridged cyclic hydrocarbon group; Y1, Y2 = O, CO2; a = 0.1-0.8; b, c = 0-0.8; (b + c) = 0.05-0.8]. The photoresists show high sensitivity and resoln., and low line edge roughness.

IT **851866-57-4P 851866-58-5P 851866-59-6P**
851866-60-9P 851866-61-0P 851866-62-1P
851866-63-2P

(acrylic polymers having specific acid-labile groups for chem. amplified pos. photoresists)

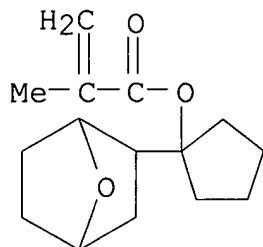
RN 851866-57-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

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CRN 676456-72-7

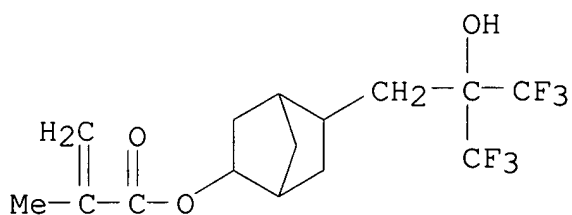
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CRN 617711-94-1

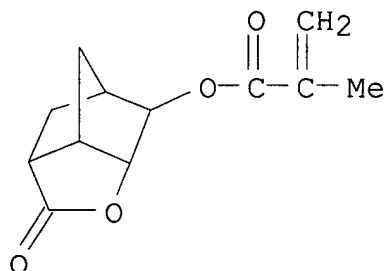
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CM 3

CRN 254900-07-7

CMF C12 H14 O4



RN 851866-58-5 ZCAPLUS

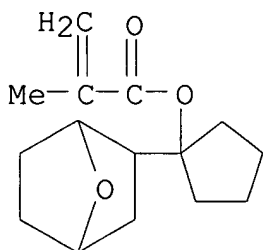
CN 2-Propenoic acid, 2-methyl-, 3-hydroxy-2-(cyclopentylidene)cyclohexyl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-

(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

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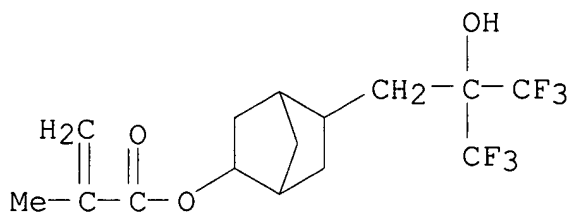
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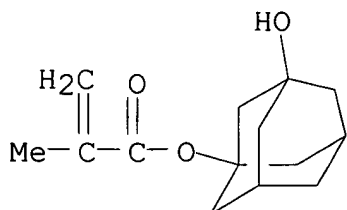
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CM 3

CRN 115372-36-6

CMF C14 H20 O3



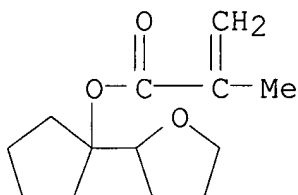
RN 851866-59-6 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
ester, polymer with 1-(tetrahydro-2-furanyl)cyclopentyl
2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-
(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-
propenoate (9CI) (CA INDEX NAME)

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CRN 819837-30-4

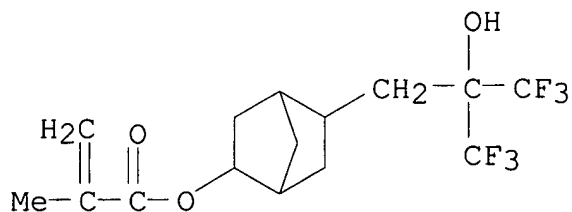
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CM 2

CRN 617711-94-1

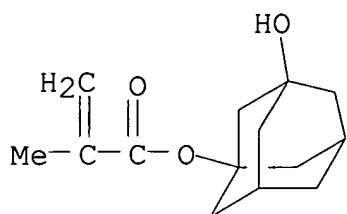
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CM 3

CRN 115372-36-6

CMF C14 H20 O3



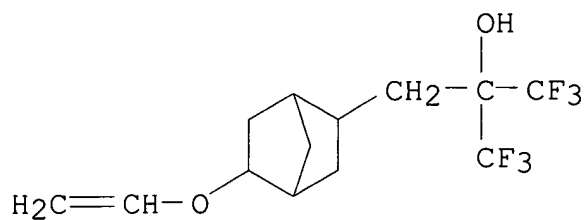
RN 851866-60-9 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1.3]dec-1-yl ester, polymer with 5-(ethenyloxy)-.alpha.,.alpha.-bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

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CRN 849811-87-6

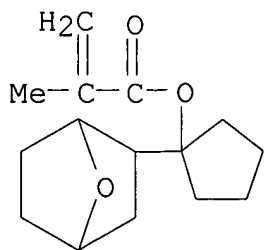
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CRN 676456-72-7

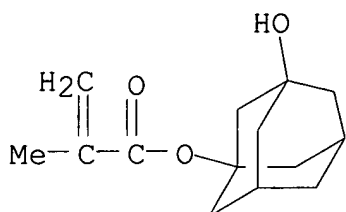
CMF C15 H22 O3



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CRN 115372-36-6

CMF C14 H20 O3



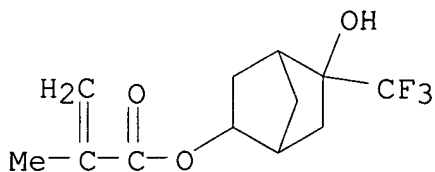
RN 851866-61-0 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with 5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

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CRN 849803-66-3

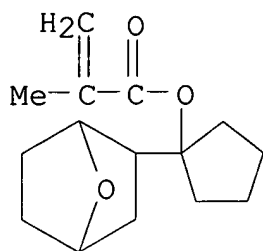
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CM 2

CRN 676456-72-7

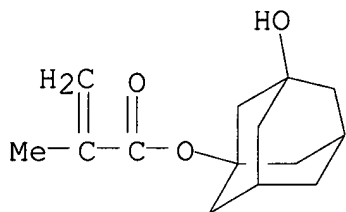
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



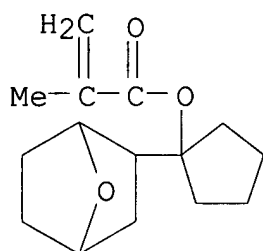
RN 851866-62-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyldecahydro-1,4:5,8-dimethanonaphthalen-2-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

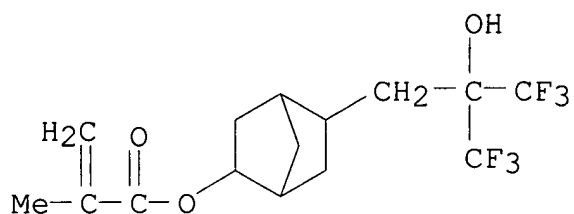
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CM 2

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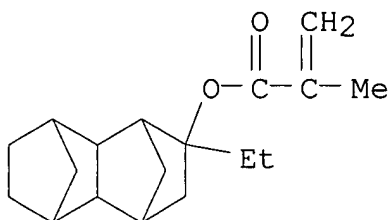
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CM 3

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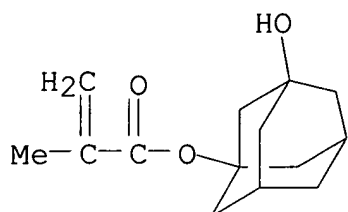
CMF C18 H26 O2



CM 4

CRN 115372-36-6

CMF C14 H20 O3



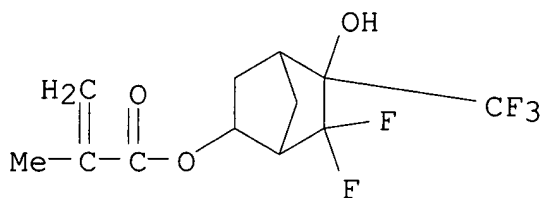
RN 851866-63-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 6,6-difluoro-5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 849803-71-0

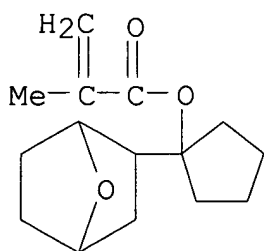
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CM 2

CRN 676456-72-7

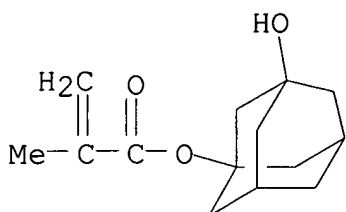
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



IT **851866-57-4P 851866-58-5P 851866-59-6P**
851866-60-9P 851866-61-0P 851866-62-1P
851866-63-2P

(acrylic polymers having specific acid-labile groups for chem. amplified pos. photoresists)

L6 ANSWER 2 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
 2005:428605 Document No. 142:472603 Chemical amplification-type positive resist materials and pattern formation. Hatakeyama, Jun; Kawai, Yoshio (Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005128146 A2 20050519, 42 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-361849 20031022.

AB The resist materials comprise (A) .gtoreq.1 base polymers selected from poly(acrylic acids), their derivs., cycloolefin deriv.-maleic anhydride alternating copolymers, cycloolefin deriv.-maleic anhydride-acrylic acid deriv. copolymers, cycloolefin deriv.-maleimide alternating copolymers, cycloolefin deriv.-maleimide-acrylic acid deriv. copolymers, polynorbornenes, and metathesis ring-opening polymers, (B) $R_4[R_3C(OH)R_1R_2]_n$ ($R_1, R_2 = H, F, C1-4$ alkyl, fluorinated alkyl; R_1 and/or $R_2 = F$ -contg. group; $R_3 =$ single bond, $C1-4$ alkylene; $R_4 = C4-20$ n-valent cycloalkyl; R_4 may contain OH, ether, ester, CO, lactone group; $n = 1-4$), (C) org. solvents, and (D) acid generators. Patterns are formed by applying the materials on substrates, heating, exposing to high-energy ray or electron beam via photomasks, heating as necessary, and developing. The materials show low line-edge roughness and decreased development residues caused by swelling in development measured by QCM (quartz crystal microbalance) method.

IT **851473-87-5**

(chem. amplification-type pos. resists with low swelling in development for fine pattern formation)

RN 851473-87-5 ZCAPLUS

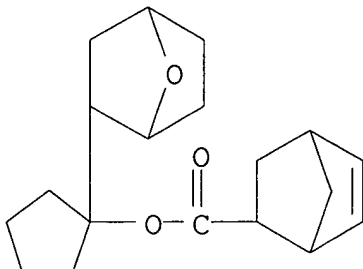
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl

bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

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CRN 676456-74-9

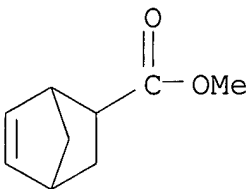
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CM 2

CRN 6203-08-3

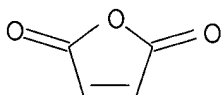
CMF C9 H12 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



IT **851473-87-5**

(chem. amplification-type pos. resists with low swelling in development for fine pattern formation)

L6 ANSWER 3 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2005:238524 Document No. 142:325926 Polymer, resist composition and
patterning process. Tachibana, Seiichiro; Nishi, Tsunehiro;
Kobayashi, Tomohiro (Japan). U.S. Pat. Appl. Publ. US 2005058938 A1
20050317, 46 pp. (English). CODEN: USXXCO. APPLICATION: US
2004-936753 20040909. PRIORITY: JP 2003-320659 20030912.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB A polymer comprises recurring units of formulas I, II, III, IV
(R1-3,4,7 = H, Me; R2 = acid labile group; R5,6 = H, hydroxyl; R8 =
lactone structure group) and has a Mw of 1,000-50,000. A resist
compn. comprising the inventive polymer has a sensitivity to
high-energy radiation, improved resoln. and etching resistance and
lends itself to lithog. micropatterning with electron beams or deep
UV.

IT **848134-66-7P 848134-67-8P 848134-73-6P**
848134-74-7P 848134-79-2P 848134-80-5P
848144-03-6P

(polymer, resist compn. for patterning process)

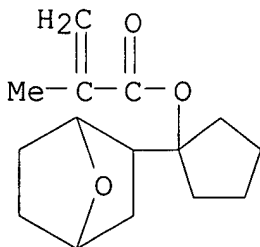
RN 848134-66-7 ZCAPLUS

CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid,
hexahydro-6-[(2-methyl-1-oxo-2-propenyl)oxy]-2-oxo-, methyl ester,
polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
2-methyl-2-propenoate, 2-methyl-2-propenoic acid and
1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate
(9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

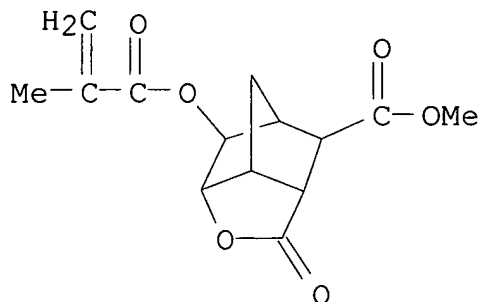
CMF C15 H22 O3



CM 2

CRN 274247-93-7

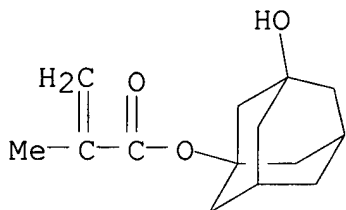
CMF C14 H16 O6



CM 3

CRN 115372-36-6

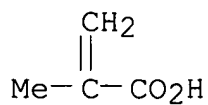
CMF C14 H20 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



RN 848134-67-8 ZCAPLUS

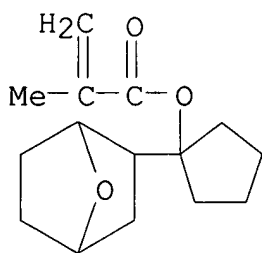
CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-5-oxo-2,6-

methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate,
3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and
1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate
(9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

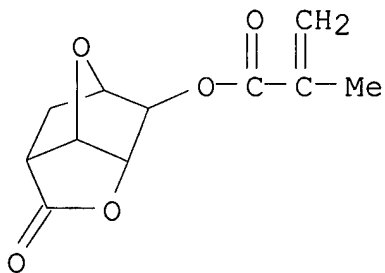
CMF C15 H22 O3



CM 2

CRN 274248-05-4

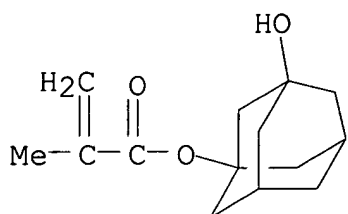
CMF C11 H12 O5



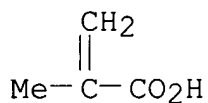
CM 3

CRN 115372-36-6

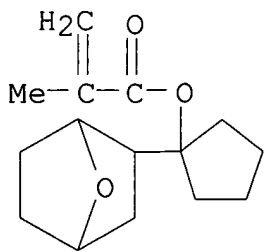
CMF C14 H20 O3



CRN 79-41-4
CMF C4 H6 O2

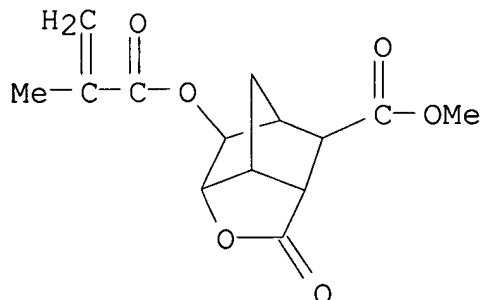


CRN 676456-72-7
CMF C15 H22 O3



CRN 274247-93-7

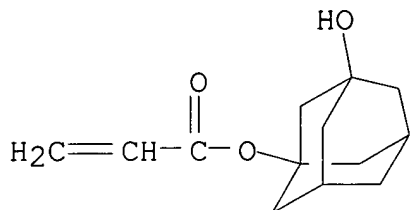
CMF C14 H16 O6



CM 3

CRN 216581-76-9

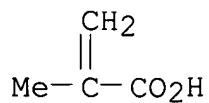
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



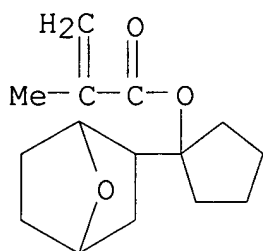
RN 848134-74-7 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

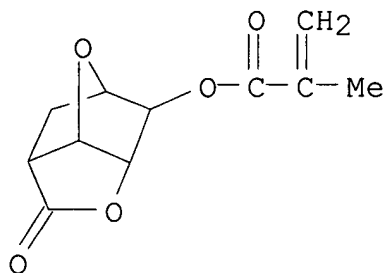
CMF C15 H22 O3



CM 2

CRN 274248-05-4

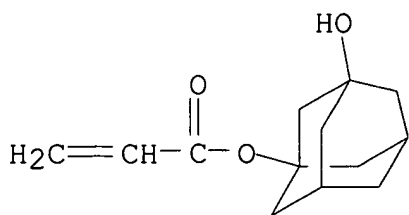
CMF C11 H12 O5



CM 3

CRN 216581-76-9

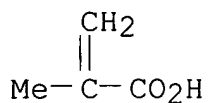
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



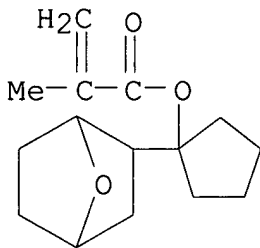
RN 848134-79-2 ZCAPLUS

CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid,
hexahydro-2-oxo-6-[(1-oxo-2-propenyl)oxy]-, methyl ester, polymer
with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate,
2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-
yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

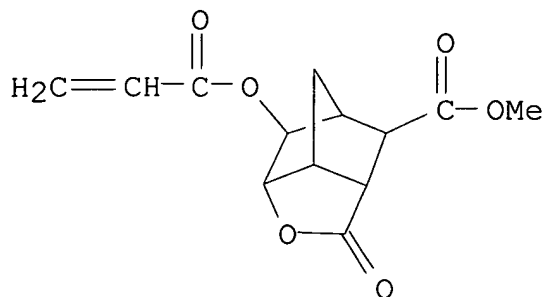
CMF C15 H22 O3



CM 2

CRN 449759-66-4

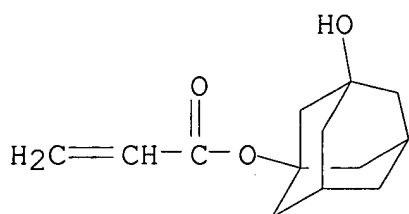
CMF C13 H14 O6



CM 3

CRN 216581-76-9

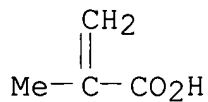
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



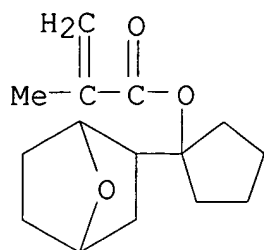
RN 848134-80-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-2-oxo-2,6-methanofuro[3,2-b]furan-6-yl 2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

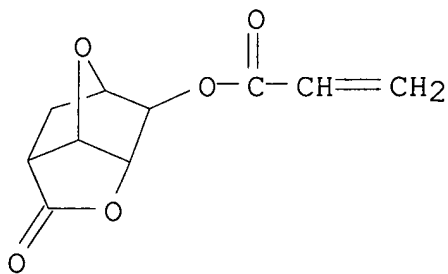
CMF C15 H22 O3



CM 2

CRN 500556-61-6

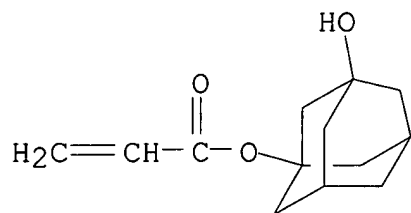
CMF C10 H10 O5



CM 3

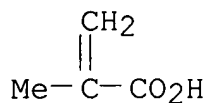
CRN 216581-76-9

CMF C13 H18 O3



CM 4

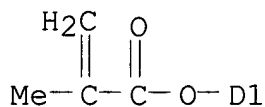
CRN 79-41-4
CMF C4 H6 O2



RN 848144-03-6 ZCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

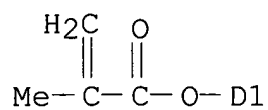
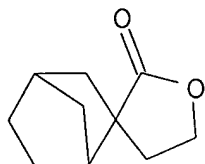
CM 1

CRN 848143-98-6
CMF C14 H18 O4
CCI IDS



CM 2

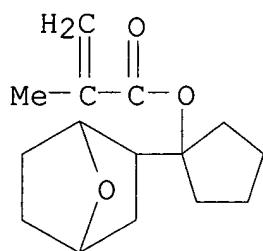
CRN 848143-97-5
CMF C14 H18 O4
CCI IDS



CM 3

CRN 676456-72-7

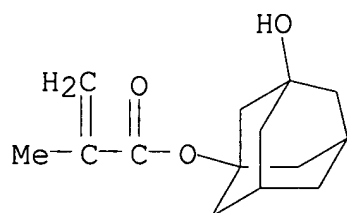
CMF C15 H22 O3



CM 4

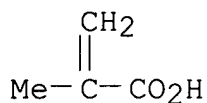
CRN 115372-36-6

CMF C14 H20 O3



CM 5

CRN 79-41-4
CMF C4 H6 O2

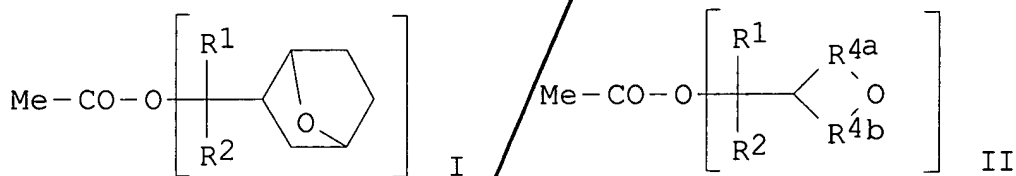


IT **848134-66-7P 848134-67-8P 848134-73-6P**
848134-74-7P 848134-79-2P 848134-80-5P
848144-03-6P

(polymer, resist compn. for patterning process)

L6 ANSWER 4 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2005:135758 Document No. 142:228725 Oxygen plasma-resistant
radiation-sensitive resists, their patterning, and macromolecules
therefor. Hatakeyama, Jun; Takeda, Takanobu; Watanabe, Osamu
(Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo
Koho JP 2005042085 A2, 20050217, 72 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2004-14354 20040122. PRIORITY: JP 2003-21416
20030130; JP 2003-194033 20030709.

GI



AB The macromols. have Si-bearing repeating unit and unit (i)
MeCO₂[CR¹R²(A¹R³)] [A¹ = (tetrahydro)furandiyl, oxanorbornanediyl;
R¹, R² = C1-10 hydrocarbyl; R³ = H, C1-10 hydrocarbyl], (ii) I (R'¹,
R'² = C1-10 hydrocarbyl), and/or (iii) II [R''¹, R''² = C1-10
hydrocarbyl; C1-10 hydrocarbyl; R^{4a}, R^{4b} = single bond, C1-4
alk(ne)ylene within total C no. of 3-60]. Pos.-working
(chem.-amplified) resists contg. the macromols., and their
patterning with .ltoreq.300-nm high-energy or electron beams are
also claimed. The resist patterns are resistant against O plasma
and Cl- or Br-contg. gas etchants.

IT **843647-82-5P 843647-84-7P 843647-85-8P**
843647-86-9P 843647-87-0P 843647-88-1P

843647-89-2P

(photoresists; Si- and prescribed cyclic group-contg. polymers
for oxygen plasma-resistant pos. photoresists)

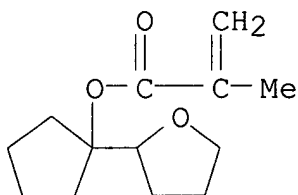
RN 843647-82-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-2-furanyl)cyclopentyl
ester, polymer with 4-ethenylphenol and 2-[2,2,2-trimethyl-1,1-
bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI) (CA
INDEX NAME)

CM 1

CRN 819837-30-4

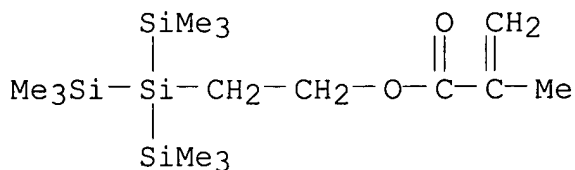
CMF C13 H20 O3



CM 2

CRN 211369-53-8

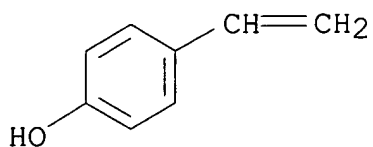
CMF C15 H36 O2 Si4



CM 3

CRN 2628-17-3

CMF C8 H8 O



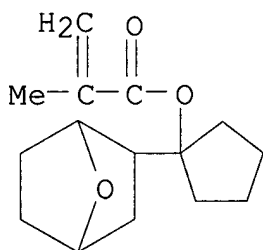
RN 843647-84-7 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 4-ethenylphenol and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

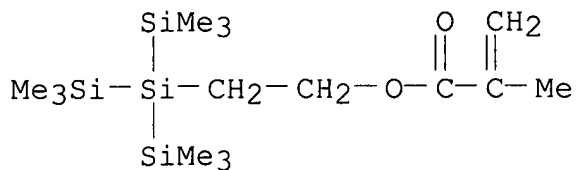
CMF C15 H22 O3



CM 2

CRN 211369-53-8

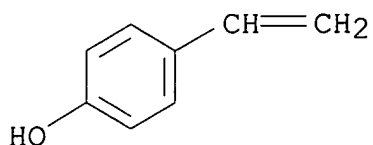
CMF C15 H36 O2 Si4



CM 3

CRN 2628-17-3

CMF C8 H8 O



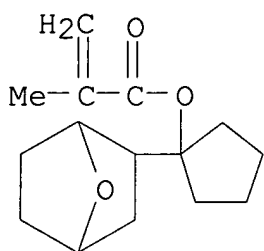
RN 843647-85-8 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 4-ethenylphenol, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

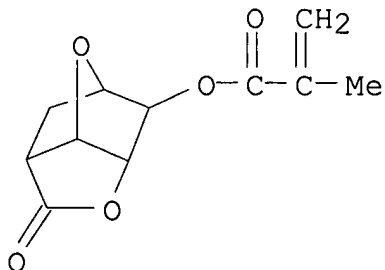
CMF C15 H22 O3



CM 2

CRN 274248-05-4

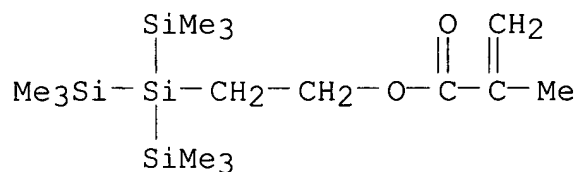
CMF C11 H12 O5



CM 3

CRN 211369-53-8

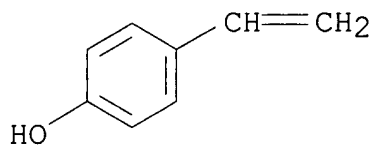
CMF C15 H36 O2 Si4



CM 4

CRN 2628-17-3

CMF C8 H8 O



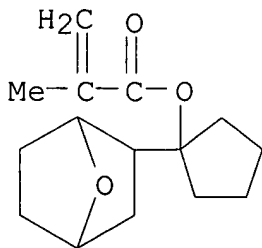
RN 843647-86-9 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

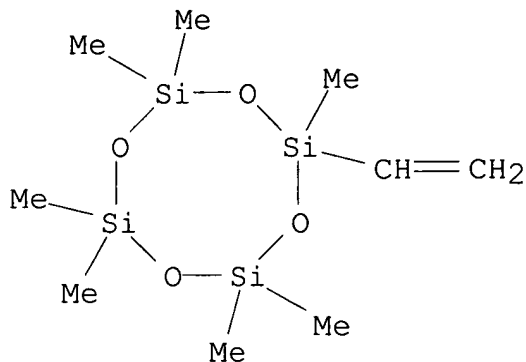
CMF C15 H22 O3



CM 2

CRN 3763-39-1

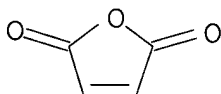
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6

CMF C4 H2 O3



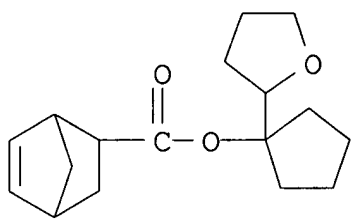
RN 843647-87-0 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane, 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-73-8

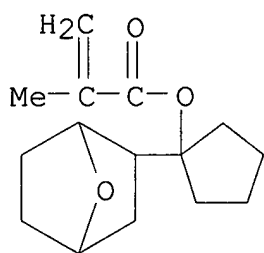
CMF C17 H24 O3



CM 2

CRN 676456-72-7

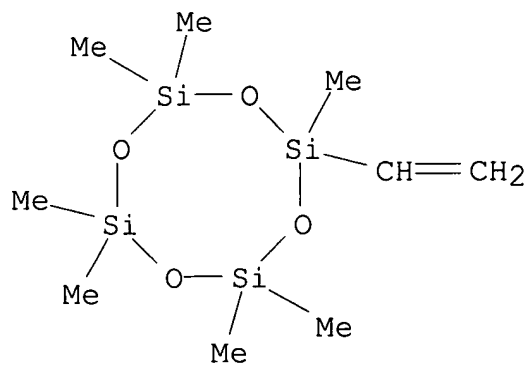
CMF C15 H22 O3



CM 3

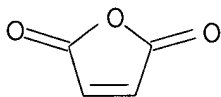
CRN 3763-39-1

CMF C9 H24 O4 Si4



CM 4

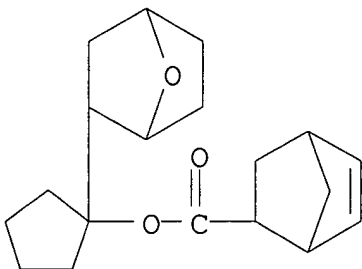
CRN 108-31-6
CMF C4 H2 O3



RN 843647-88-1 ZCAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

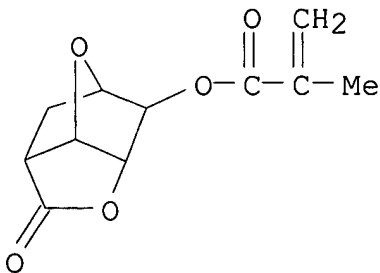
CM 1

CRN 676456-74-9
CMF C19 H26 O3



CM 2

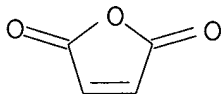
CRN 274248-05-4
CMF C11 H12 O5



CM 3

CRN 108-31-6

CMF C4 H2 O3



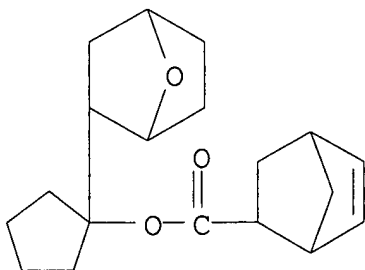
RN 843647-89-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13, 9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

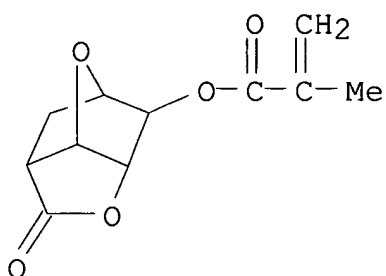
CMF C19 H26 O3



CM 2

CRN 274248-05-4

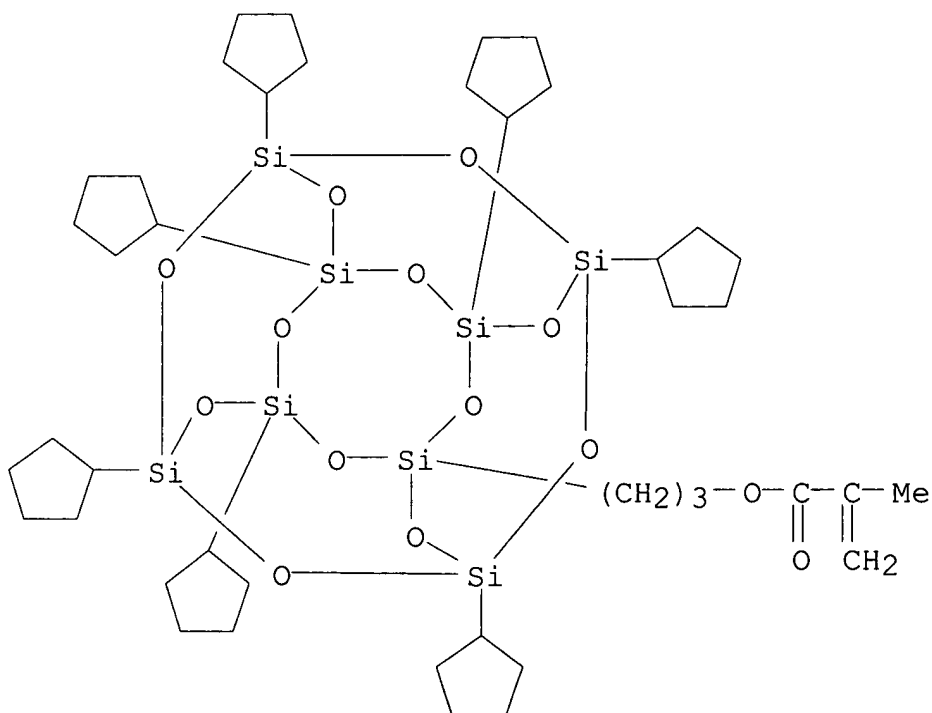
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



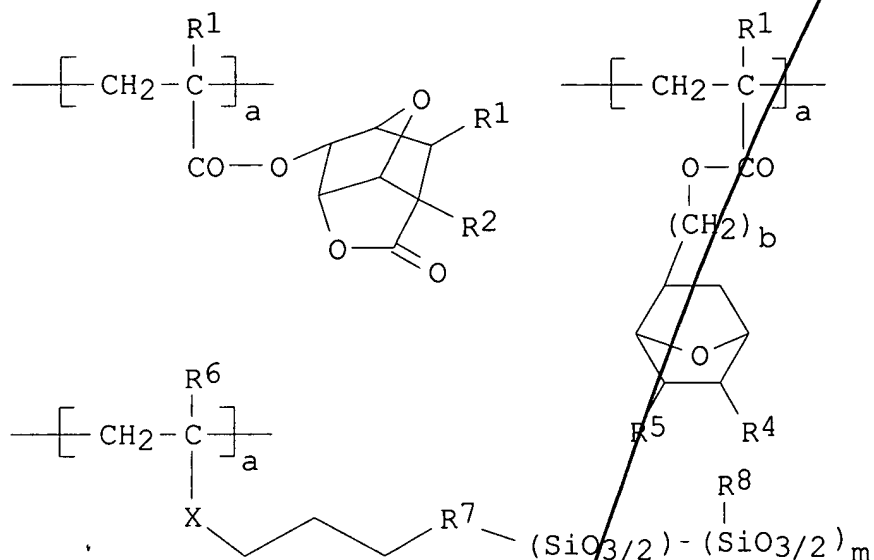
IT 843647-82-5P 843647-84-7P 843647-85-8P
 843647-86-9P 843647-87-0P 843647-88-1P
 843647-89-2P

(photoresists; Si- and prescribed cyclic group-contg. polymers
 for oxygen plasma-resistant pos. photoresists)

L6 ANSWER 5 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2005:33606 Document No. 142:103181 Acrylic polymers, their chemically amplified positive photoresists with high resolution and sensitivity and suppressed line edge roughness, and photolithography using them. Hatakeyama, Jun; Watanabe, Takeshi; Takeda, Takanobu (Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005008765 A2 20050113, 58 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-174894 20030619.

GI



I

AB The acrylic polymers contain repeating units I [R1, R6 = H, Me, F, CF3, CN, CH2CO2R12, CH2OR13; R2 = H, Me, CN; R3 = H, ester; R4, R5 = H, ester, lactone-contg. group; R8 = H, C1-10 alkyl, fluorinated alkyl; R7 = single bond, (SiR9R10R11)n; R9, R10 = C1-10 alkyl; R11 = single bond, O, C1-4 alkylene; X = ester, ether; a, b .gtoreq.0; c >0; 0 < (a + b)/(a + b + c) < 0.8; 0 < c/(a + b + c) < 0.5; m = 4-40; n = 1-20; p = 0-2; R12 = C1-4 alkyl; R13 = H, C1-4 alkyl, C1-4 acyl] and other repeating units that increase alkali soly. of the polymers in the presence of acids. The photolithog. may involve etching with O plasma or halogen gases contg. Cl or Br.

IT **819837-31-5P 819837-32-6P**

(acrylic polymers having oxonorborene and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resoln. and suppressed line edge roughness)

RN 819837-31-5 ZCAPLUS

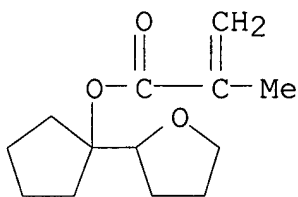
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13, 9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl

2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 819837-30-4

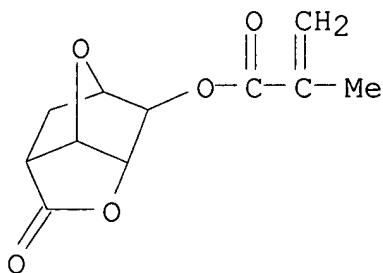
CMF C13 H20 O3



CM 2

CRN 274248-05-4

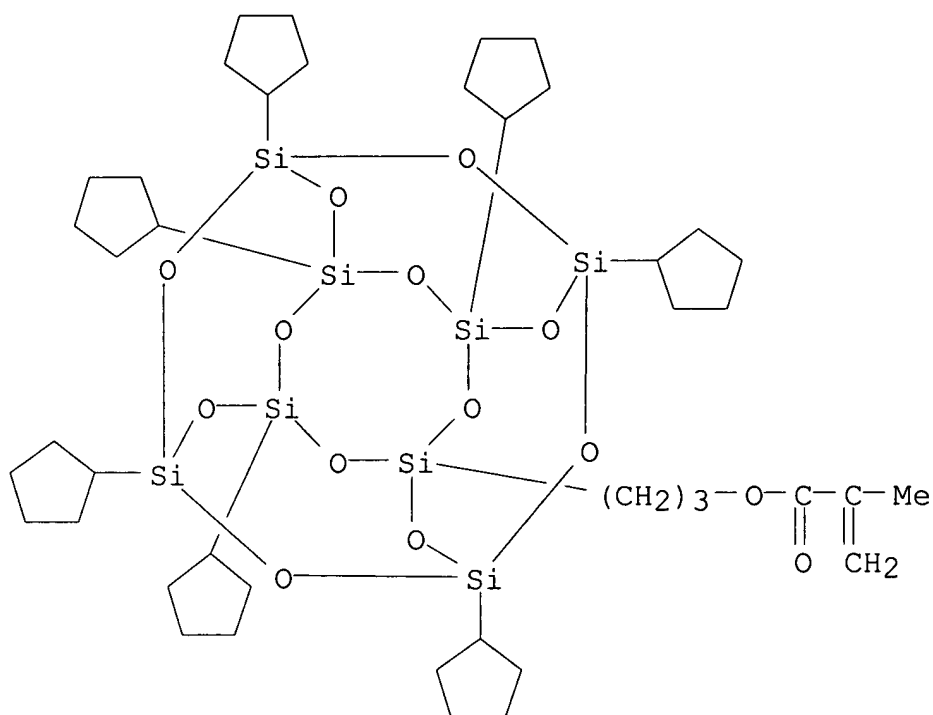
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



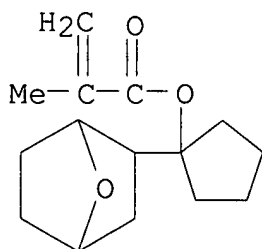
RN 819837-32-6 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13, 9.15, 15.17, 13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

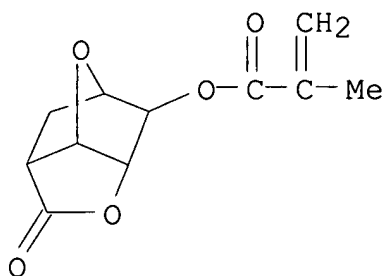
CMF C15 H22 O3



CM 2

CRN 274248-05-4

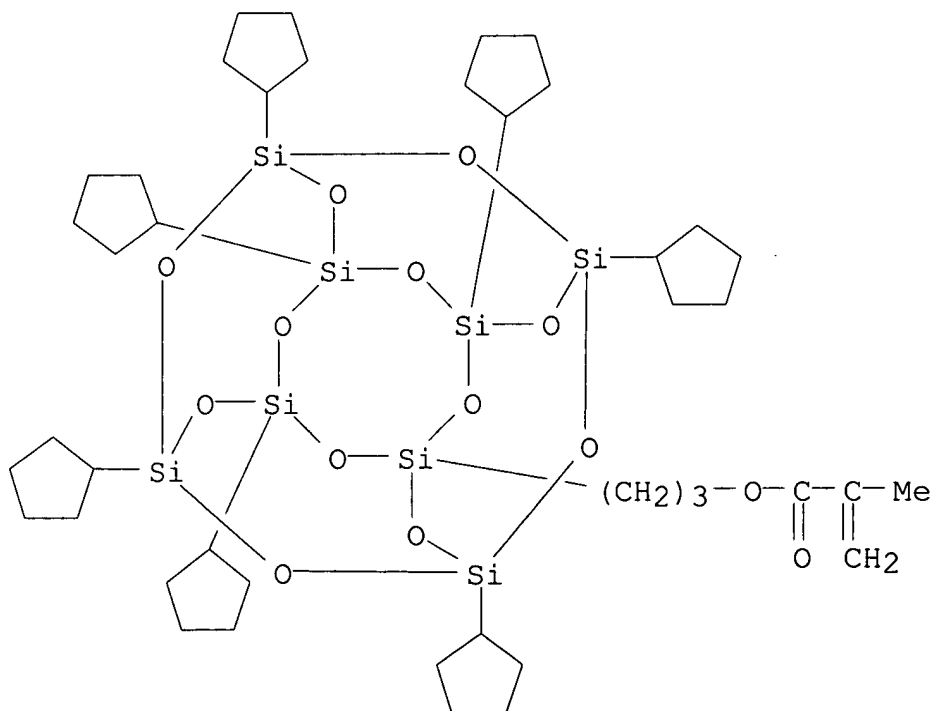
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



IT **819837-31-5P 819837-32-6P**
(acrylic polymers having oxonorborene and polyhedral

oligosilsesquioxane pendants for pos. photoresists with high
resoln. and suppressed line edge roughness)

L6 ANSWER 6 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2004:1036753 Document No. 142:30014 Silicon-containing polymer, resist
composition and patterning process. Hatakeyama, Jun; Takeda,
Takanobu (Japan). U.S. Pat. Appl. Publ. US 2004242821 A1 20041202,
38 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-853783
20040526. PRIORITY: JP 2003-148656 20030527.

AB Novel silicon-contg. polymers are provided comprising recurring
units having a POSS pendant and units which improve alkali soly.
under the action of an acid. Resist compns. comprising the polymers
are sensitive to high-energy radiation and have a high sensitivity
and resoln. at a wavelength of up to 300 nm and improved resistance
to oxygen plasma etching.

IT **802917-23-3P**
(silicon-contg. polymer, resist compn. and patterning process)

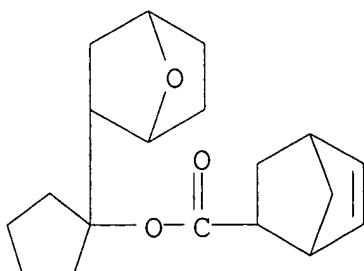
RN 802917-23-3 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-
oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with
2,5-furandione and heptacyclopentyl[(ethenyldimethylsilyl)oxy]pentac
yclo[9.5.1.13,9.15,15.17,13]octasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

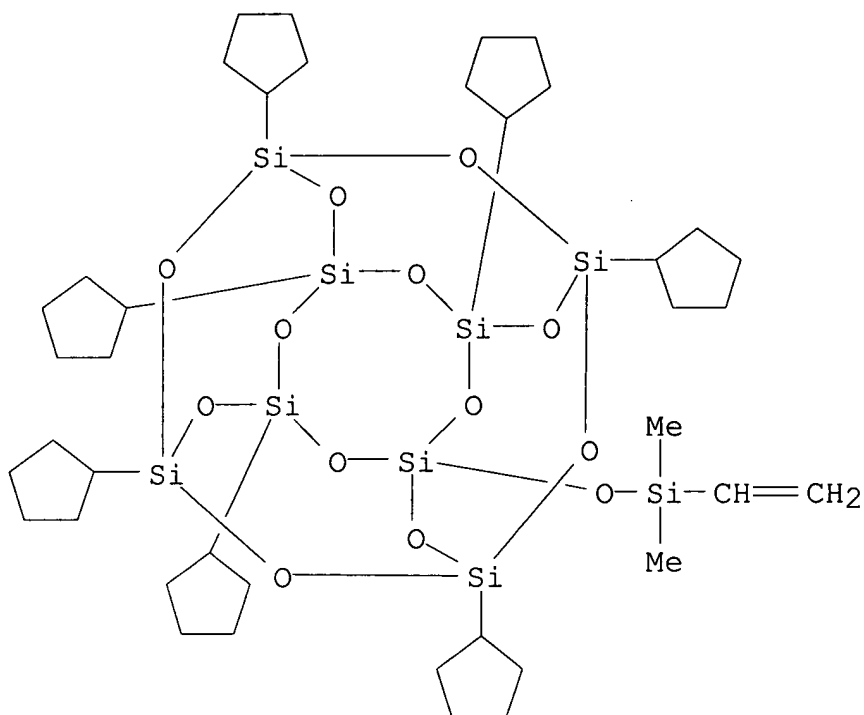
CMF C19 H26 O3



CM 2

CRN 312693-40-6

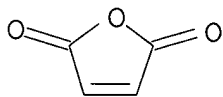
CMF C39 H72 O13 Si9



CM 3

CRN 108-31-6

CMF C4 H2 O3

IT **802917-23-3P**

(silicon-contg. polymer, resist compn. and patterning process)

L6 ANSWER 7 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2004:1012045 Document No. 142:13671 Photosensitive resin composition.
 Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki, Tomoya (Fuji Photo
 Film Co., Ltd., Japan). Eur. Pat. Appl. EP 1480079 A2 20041124, 133
 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT,
 LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG,
 CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP
 2004-19923 20030606. PRIORITY: JP 2002-167393 20020607; JP
 2002-181384 20020621; JP 2002-181588 20020621; EP 2003-12226

20030606.

AB The photosensitive resin compn. of the present invention exhibits significant transmissibility at the use of an exposure light source of 160 nm or less, more specifically F2 excimer laser light, where line edge roughness and development time dependence are small and a problem of footing formation is improved. The photosensitive resin comprises a resin which decomp. by an action of acid to increase the soly. in alkali developer, in which the resin contains a specific repeat unit; a compd. capable of generating an acid upon irradiation with one of an actinic ray and a radiation, in which the compd. includes at least two kinds of compds. selected from the group consisting of specific compds (B1), (B2), (B3) and (B4). (B1) is a compd. capable of generating aliph. or arom. sulfonic acid substituted with at least one fluorine atom upon irradiation with one of an actinic ray and a radiation; (B2) is a compd. capable of generating aliph. or arom. sulfonic acid contg. no fluorine atom upon irradiation with one of an actinic ray and a radiation; (B3) is a compd. capable of generating aliph. or arom. carboxylic acid substituted with at least one fluorine atom upon irradiation with one of an actinic ray and a radiation; and (B4) is a compd. capable of generating aliph. or arom. carboxylic acid contg. no fluorine atom upon irradiation with one of an actinic ray and a radiation.

IT **798556-54-4**

(photosensitive resin compn.)

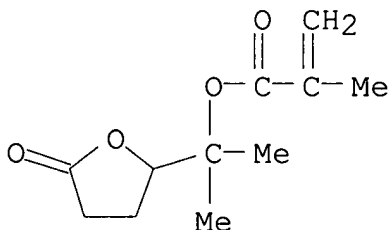
RN 798556-54-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-2-furanyl)ethyl ester, polymer with .alpha.-(difluoromethyl)-4-ethenyl-.alpha.-(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

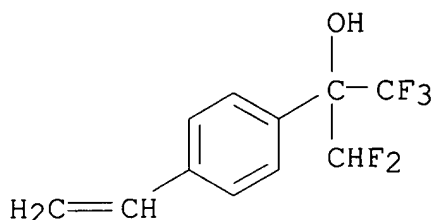
CRN 798556-53-3

CMF C11 H16 O4



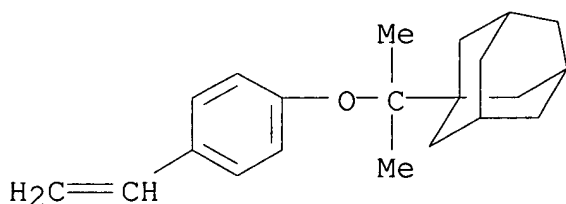
CM 2

CRN 485390-53-2
CMF C11 H9 F5 O



CM 3

CRN 430437-25-5
CMF C21 H28 O



IT **798556-54-4**
(photosensitive resin compn.)

L6 ANSWER 8 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2004:261017 Document No. 140:311986 Ester compounds, polymers, resist compositions and patterning process. Hasegawa, K.; Kinsho, T.; Watanabe, T. (Shin-Etsu Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 1403295 A2, 20040331, 48 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-256075 20030926. PRIORITY: JP 2002-285161 20020930.

AB The present invention relates to novel ester compds. having formula: $A1C(=O)OCR1R2A2-R3$ ($A1$ = polymerizable functional group having a double bond; $A2$ = furan-diyl, tetrahydrofurandiyl or oxa-norbornane-diyl; $R1,2$ = monovalent hydrocarbon group, or $R1$ and $R2$ may bond together to form an aliph. hydrocarbon ring with the carbon atom; $R3$ = hydrogen or a monovalent hydrocarbon group which may contain a hetero atom are polymerizable into polymers). Resist compns. comprising the polymers are sensitive to high-energy

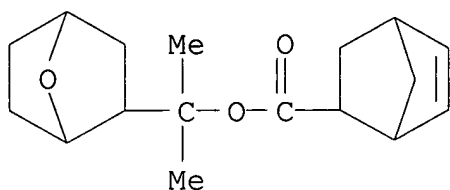
radiation, have an improved sensitivity, resolu., and etching resistance, and lend themselves to micropatterning with electron beams or deep-UV rays.

IT **461671-54-5P 676456-68-1P 676456-69-2P**
676456-70-5P 676456-71-6P 676456-72-7P
676456-73-8P 676456-74-9P

(ester compds. for polymers and photoresist compns.)

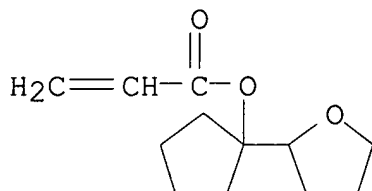
RN 461671-54-5 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl ester (9CI) (CA INDEX NAME)



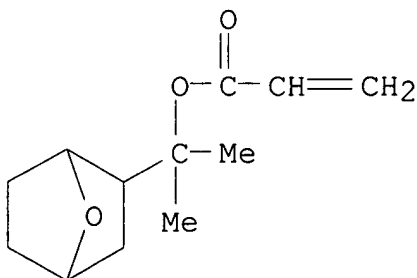
RN 676456-68-1 ZCAPLUS

CN 2-Propenoic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester (9CI)
 (CA INDEX NAME)



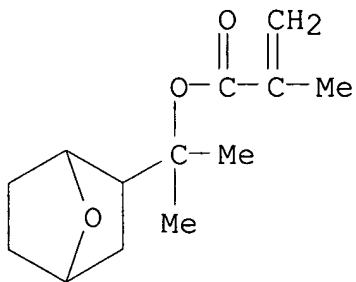
RN 676456-69-2 ZCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl ester (9CI) (CA INDEX NAME)



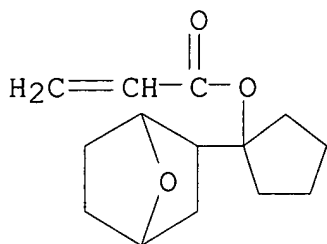
RN 676456-70-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl ester (9CI) (CA INDEX NAME)



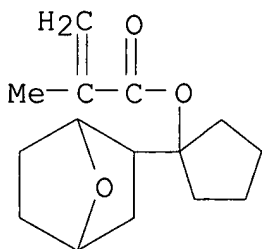
RN 676456-71-6 ZCAPLUS

CN 2-Propenoic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester (9CI) (CA INDEX NAME)



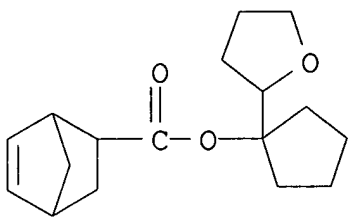
RN 676456-72-7 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester (9CI) (CA INDEX NAME)



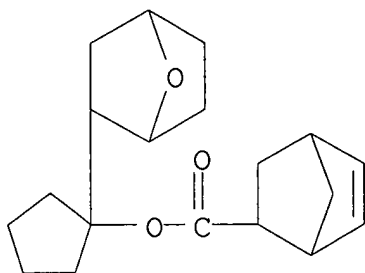
RN 676456-73-8 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester (9CI) (CA INDEX NAME)



RN 676456-74-9 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester (9CI) (CA INDEX NAME)



IT **676456-75-0P 676456-76-1P 676456-77-2P**
676456-78-3P 676456-79-4P 676456-80-7P
676456-81-8P

(ester compds. for polymers and photoresist compns.)

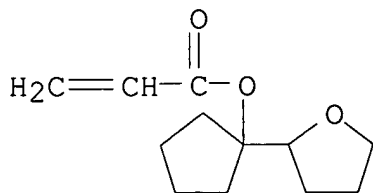
RN 676456-75-0 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-68-1

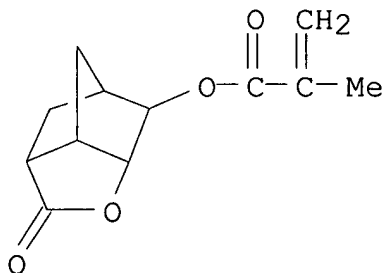
CMF C12 H18 O3



CM 2

CRN 254900-07-7

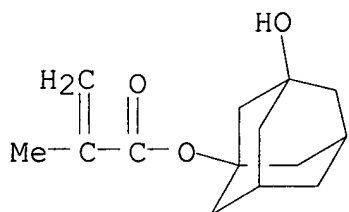
CMF C12 H14 O4



CM 3

CRN 115372-36-6

CMF C14 H20 O3



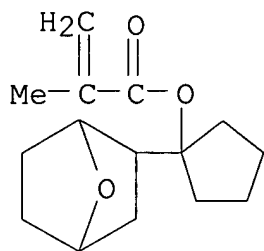
RN 676456-76-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

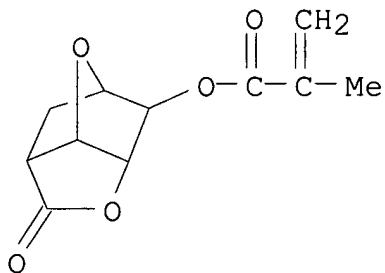
CMF C15 H22 O3



CM 2

CRN 274248-05-4

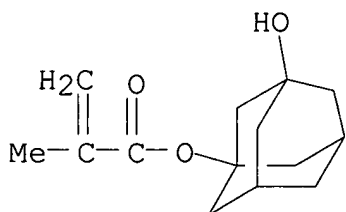
CMF C11 H12 O5



CM 3

CRN 115372-36-6

CMF C14 H20 O3



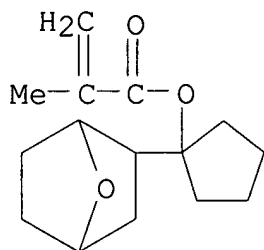
RN 676456-77-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
 ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl
 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

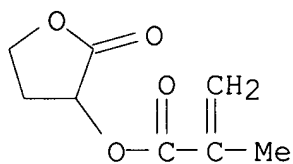
CMF C15 H22 O3



CM 2

CRN 195000-66-9

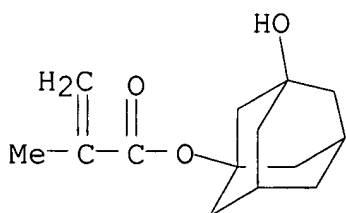
CMF C8 H10 O4



CM 3

CRN 115372-36-6

CMF C14 H20 O3



RN 676456-78-3 ZCAPLUS

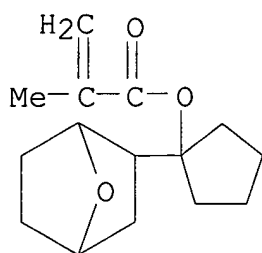
CN 2-Propenoic acid, 2-methyl-, 2-ethyldecahydro-1,4:5,8-

dimethanonaphthalen-2-yl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

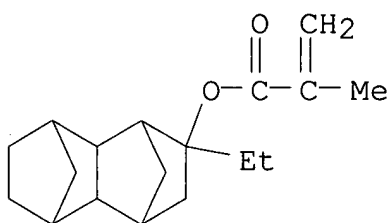
CMF C15 H22 O3



CM 2

CRN 485819-03-2

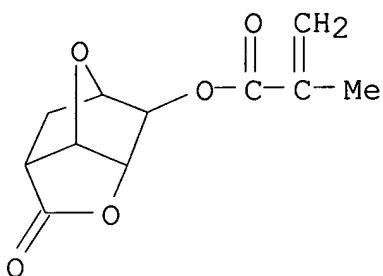
CMF C18 H26 O2



CM 3

CRN 274248-05-4

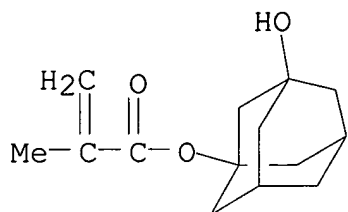
CMF C11 H12 O5



CM 4

CRN 115372-36-6

CMF C14 H20 O3



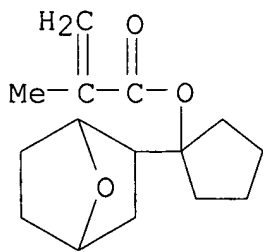
RN 676456-79-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl
 ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl
 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

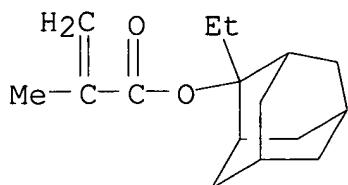
CMF C15 H22 O3



CM 2

CRN 209982-56-9

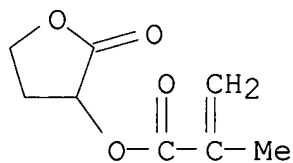
CMF C16 H24 O2



CM 3

CRN 195000-66-9

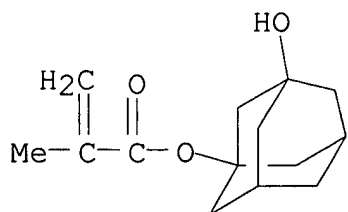
CMF C8 H10 O4



CM 4

CRN 115372-36-6

CMF C14 H20 O3



RN 676456-80-7 ZCAPLUS

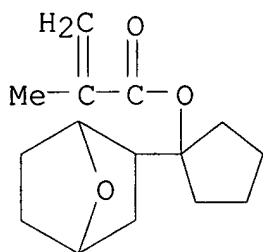
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, tetrahydro-2-oxo-3-furanyl ester, polymer with 2,5-furandione and 1-(7-

oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 676456-72-7

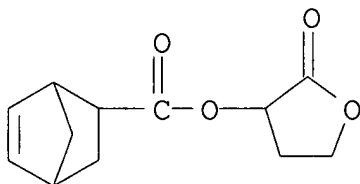
CMF C15 H22 O3



CM 2

CRN 264193-09-1

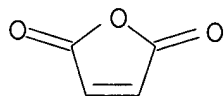
CMF C12 H14 O4



CM 3

CRN 108-31-6

CMF C4 H2 O3



RN 676456-81-8 ZCAPLUS

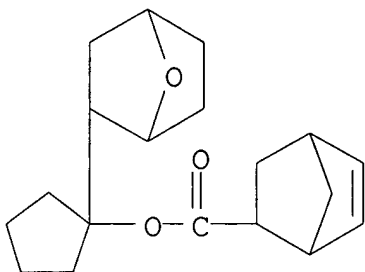
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-

oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with
2,5-furandione and tetrahydro-2-oxo-3-furanyl bicyclo[2.2.1]hept-5-
ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

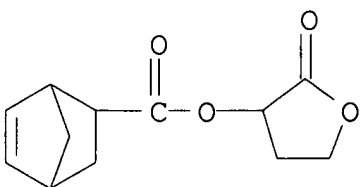
CMF C19 H26 O3



CM 2

CRN 264193-09-1

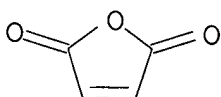
CMF C12 H14 O4



CM 3

CRN 108-31-6

CMF C4 H2 O3



IT 461671-54-5P 676456-68-1P 676456-69-2P

676456-70-5P 676456-71-6P 676456-72-7P**676456-73-8P 676456-74-9P**

(ester compds. for polymers and photoresist compns.)

IT **676456-75-0P 676456-76-1P 676456-77-2P****676456-78-3P 676456-79-4P 676456-80-7P****676456-81-8P**

(ester compds. for polymers and photoresist compns.)

L6 ANSWER 9 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2004:77035 Document No. 140:136429 Positive radiation-sensitive resist compositions with excellent sensitivity, resolution, and adhesion to substrates. Senoo, Masahide; Tamura, Kazutaka; Nio, Hiroyuki (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2004029437 A2 20040129, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-186416 20020626.

AB The compns., useful for patterning with electron beams or x-ray beams, contain polymers (A) bearing units becoming alkali sol. by acids, lactone units, and phenolic OH groups and photoacid generators (B).

IT **649758-28-1P**

(chem. amplified pos. resists with good sensitivity to electron beams or x-ray beams, resoln., and adhesion to substrates)

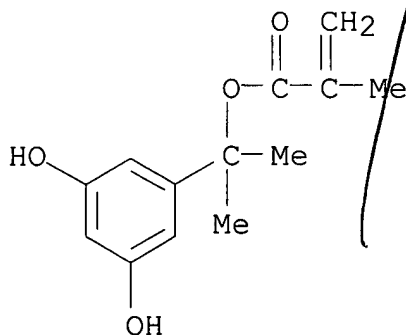
RN 649758-28-1 ZCAPLUS

CN 2-Propenoic acid, 2-cyano-, 1,1-diphenylethyl ester, polymer with 1-(3,5-dihydroxyphenyl)-1-methylethyl 2-methyl-2-propenoate and 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

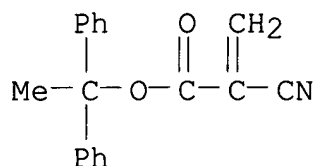
CRN 649758-27-0

CMF C13 H16 O4



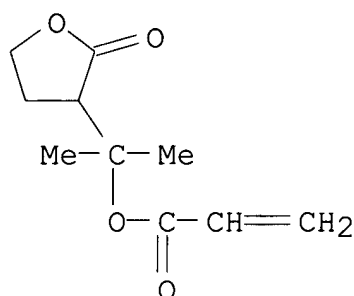
CM 2

CRN 393178-25-1
CMF C18 H15 N O2



CM 3

CRN 239784-43-1
CMF C10 H14 O4



IT **649758-28-1P**

(chem. amplified pos. resists with good sensitivity to electron beams or x-ray beams, resoln., and adhesion to substrates)

L6 ANSWER 10 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2004:5239 Document No. 140:67635 Photosensitive resin composition.
Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki, Tomoya (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 1376232 A1 20040102, 136 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-12226 20030606. PRIORITY: JP 2002-167393 20020607; JP 2002-181384 20020621; JP 2002-181588 20020621.

AB The photosensitive resin compn. of the present invention is an excellent photosensitive resin compn.: exhibiting significant transmissibility at the use of an exposure light source of 160 nm or less, more specifically F2 excimer laser light, where line edge roughness and development time dependence are small and a problem of

footing formation is improved; and comprising a resin which decomp. by an action of acid to increase the soly. in alkali developer, in which the resin contains a specific repeat unit; a compd. capable of generating an acid upon irradiation with one of an actinic ray and a radiation.

IT **629648-90-4P**

(microlithog. photosensitive resin compn. contg.)

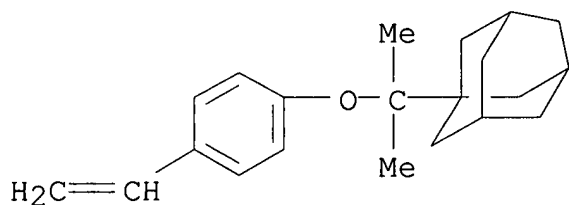
RN 629648-90-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 4-ethenyl-.alpha.-methyl-.alpha.-(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 430437-25-5

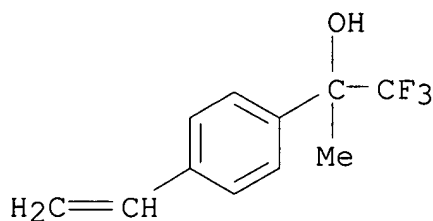
CMF C21 H28 O



CM 2

CRN 397287-76-2

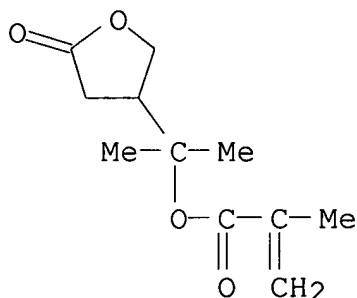
CMF C11 H11 F3 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IT **629648-90-4P**

(microlithog. photosensitive resin compn. contg.)

L6 ANSWER 11 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
 2003:945845 Document No. 140:21261 Photosensitive resin composition
 for photolithography. Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki,
 Tomoya (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho
 JP 2003344994 A2 20031203, 71 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2002-154391 20020528.

AB The compn. contains (A) a polymer with repeating unit
 R50R51R52CC(OR40)CR53R54R55 [R50-55 = H, F, (substituted) alkyl;
 .gtoreq.1 of R50-55 is F or F-substituted alkyl; R40 = H,
 (substituted) (cyclo)alkyl, (substituted) acyl, (substituted)
 alkoxy carbonyl, CR41R42(OR43); R41-42 = H, (substituted)
 (cyclo)alkyl; R43 = (substituted) (cyclo)alkyl, (substituted)
 aralkyl, (substituted) aryl; 2 of R41-43 may bond to form a ring],
 which decomps. by the action of acid and increases its soly. to
 alkali developer, (B) a compd. generating acid by irradiation of actinic
 ray, and (C) a solvent having .gtoreq.1 F in a mol. The compn.
 shows good solvent soly., coat ability, improved line edge roughness,
 and without striation, and is useful for photolithog. in manuf. of
 large-scaled integrates, etc.

IT **629648-90-4**

(photoresist compn. contg. acid-decomposable polymer, acid
 generator, and F-contg. solvent)

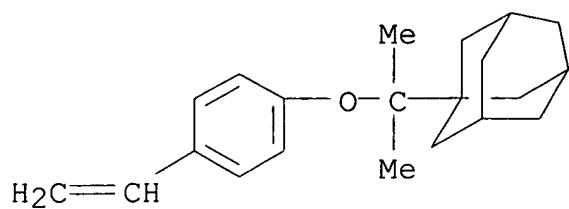
RN 629648-90-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-
 furanyl)ethyl ester, polymer with 4-ethenyl-.alpha.-methyl-.alpha.-
 (trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-
 methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 430437-25-5

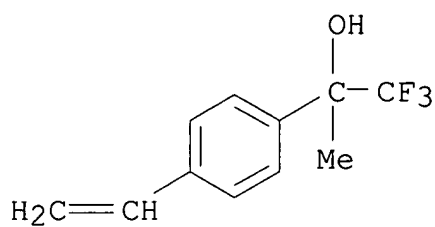
CMF C21 H28 O



CM 2

CRN 397287-76-2

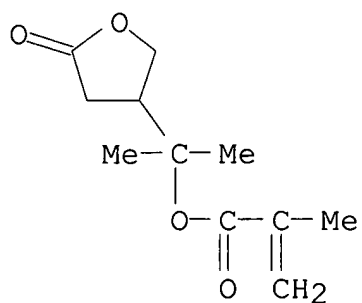
CMF C11 H11 F3 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IT **629648-90-4**
 (photoresist compn. contg. acid-decomposable polymer, acid
 generator, and F-contg. solvent)

L6 ANSWER 12 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2003:754897 Document No. 139:252537 Positive resist composition.

Fujimori, Toru (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 1347335 A1 20030924, 89 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-6122 20030318. PRIORITY: JP 2002-74565 20020318.

AB A pos. photoresist compn. used in fabrication of semiconductor devices comprises: (A) a compd. capable of generating an acid on exposure to active light rays or a radiation; (B) a resin which is insol. or sparingly sol. in an alkali and becomes alkali-sol. by an action of an acid; and (C) an acyclic compd. having at least three groups selected from a hydroxyl group and a substituted hydroxyl group.

IT **431062-22-5P**

(pos. photoresist compn. contg.)

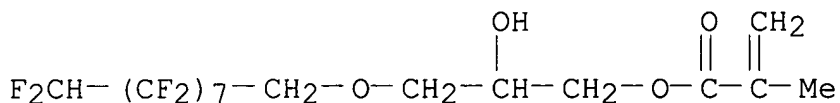
RN 431062-22-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

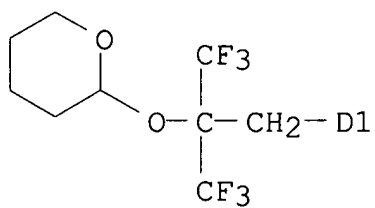
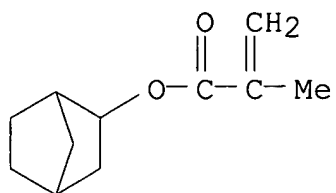


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

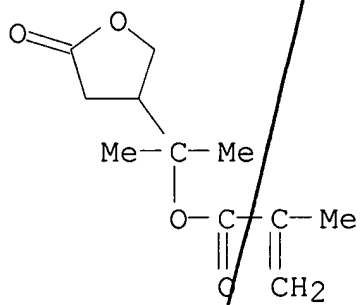
CCI IDS



CM 3

CRN 280566-59-8

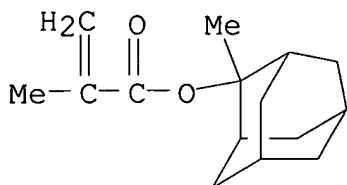
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2

IT **431062-22-5P**

(pos. photoresist compn. contg.)

L6 ANSWER 13 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2003:735196 Document No. 139:267983 Positive-working photoresist composition containing polymer with fluoro-aliphatic group.

Fujimori, Toru (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai

Tokkyo Koho JP 2003262952 A2 20030919, 88 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-65444 20020311.

AB The compn. contains (A) a compd. generating an acid by irradiation of actinic ray, (B) a resin which decomposes by the action of an acid and whose solubility in alk. developer increases, and (C) a polymer with fluoro-aliph. group formed from a monomer $\text{CH}_2:\text{CR}_1\text{COX}(\text{CH}_2)_m(\text{CF}_2\text{CF}_2)_n\text{F}$ ($\text{R}_1 = \text{H, Me}$; $\text{X} = \text{O, S, NR}_2$; $m = 1-6$; $n = 2-4$; $\text{R}_2 = \text{H, C1-4 alkyl}$). Developing defect is prevented and the compn. is useful for manufacture of integrated circuits, semiconductor device, and wiring substrates.

IT **431062-22-5P**

(pos. photoresist compn. contg. polymer with fluoro-aliph. group)

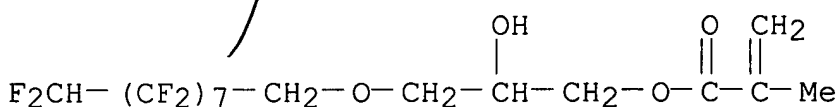
RN 431062-22-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (PCI) (CA INDEX NAME)

CM 1

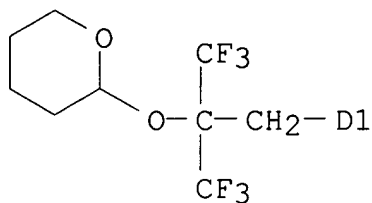
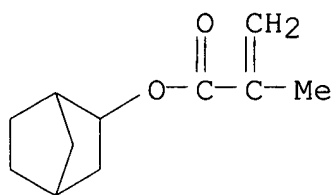
CRN 431062-21-4

CMF C16 H14 F16 O4



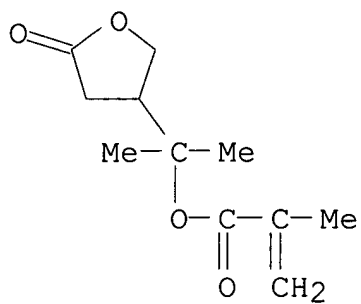
CM 2

CRN 431062-13-4
CMF C20 H26 F6 O4
CCI IDS



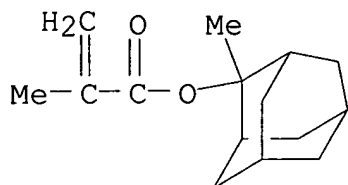
CM 3

CRN 280566-59-8
CMF C11 H16 O4



CM 4

CRN 177080-67-0
CMF C15 H22 O2



IT **431062-22-5P**

(pos. photoresist compn. contg. polymer with fluoro-aliph. group)

L6 ANSWER 14 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2003:470377 Document No. 139:44224 Positive-working resist composition containing specific fluorine group-containing resin. Kanna, Shinichi; Mizutani, Kazuyoshi; Kodama, Kunihiro; Sasaki, Tomoya (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 1319981 A2 20030618, 80 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-27667 20021212. PRIORITY: JP 2001-380104 20011213; JP 2001-380105 20011213.

AB The invention relates to a pos. resist compn. comprising (A) a fluorine group-contg. resin, which has a structure substituted with a fluorine atom in the main chain and/or side chain of polymer skeleton and a group that is decompd. by the action of an acid to increase soly. in an alkali developer and (B) an acid generator capable of generating an acid upon irradiation of an actinic ray or radiation, and the acid generator of (B) is a compd. selected from a sulfonium salt contg. no arom. ring and a compd. having a phenacylsulfonium salt structure. The compn. is capable of forming a highly precise pattern using a vacuum UV ray of .ltoreq.160 nm such as F2 excimer laser beam as a light source for exposure.

IT **431062-22-5P**

(fluorine group-contg. resin)

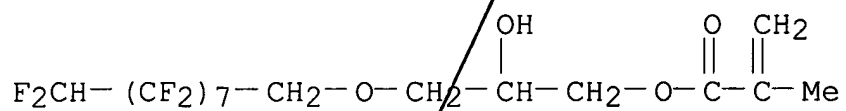
RN 431062-22-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

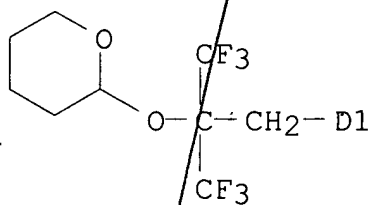
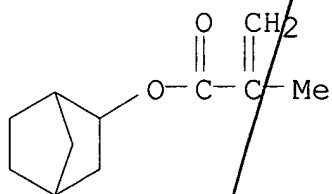


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

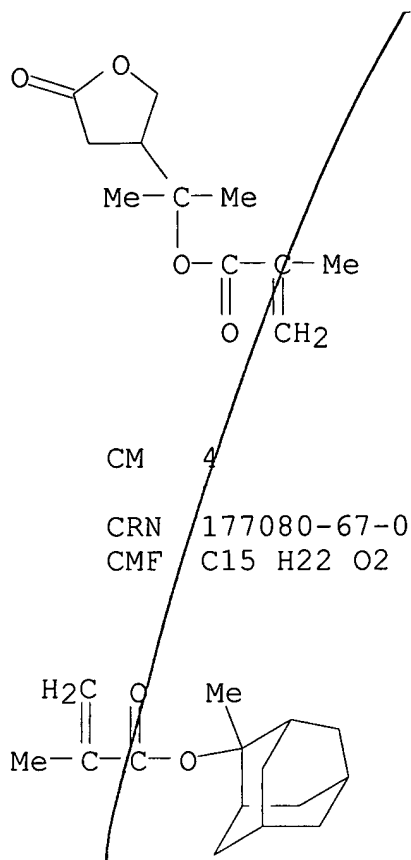
CCI IDS



CM 3

CRN 280566-59-8

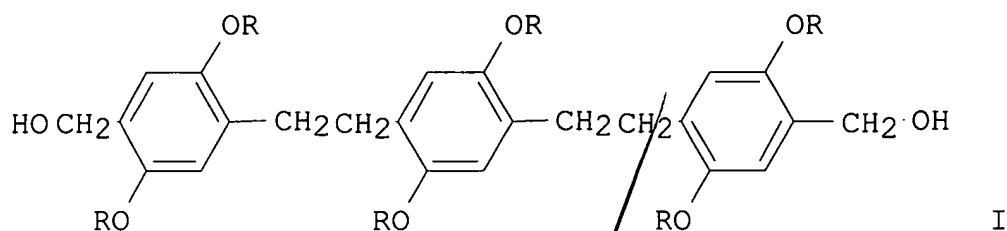
CMF C11 H16 O4



IT **431062-22-5P**
(fluorine group-contg. resin)

L6 ANSWER 15 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2003:371833 Document No. 138:376421 Chemically amplified positive
resists forming defect-free patterns by deep-UV lithography using F2
excimer lasers. Fujimori, Toru; Kanna, Shinichi (Fuji Photo Film
Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003140345 A2
20030514, 55 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
2001-338103 20011102.

GI



AB The resists comprise acid-labile F-contg. resins,
radiation-sensitive acid generators, and F-contg. compds.

IT **431062-22-5**

(chem. amplified pos. resists contg. F-substituted acid-labile
polymers and F compds. for deep-UV lithog.)

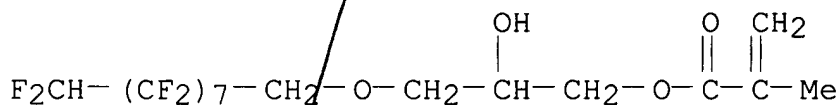
RN 431062-22-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-
hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with
1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate,
2-methyltricyclo[3.3.1.3,7]dec-2-yl 2-methyl-2-propenoate and 5(or
6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-
(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-
propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

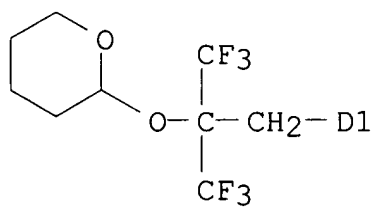
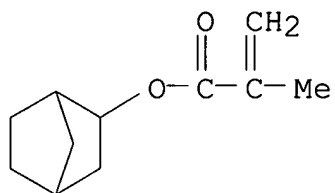


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

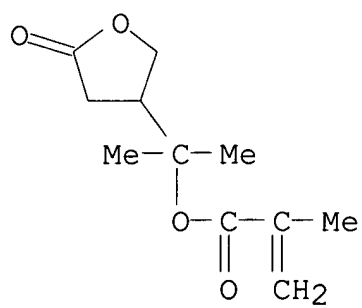
CCI IDS



CM 3

CRN 280566-59-8

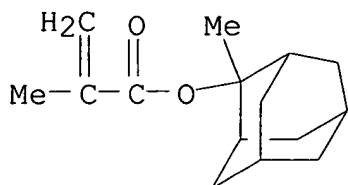
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2

IT **431062-22-5**

(chem. amplified pos. resists contg. F-substituted acid-labile polymers and F compds. for deep-UV lithog.)

L6 ANSWER 16 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2003:369197 Document No. 138:393073 Positive-working photoresist composition containing fluoro-substituted nitrogen compound. Fujimori, Toru; Kanna, Shinichi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003140349 A2 20030514, 53 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-339439 20011105.

AB The compn. contains (A) a polymer with F-substituted main chain or side chain and becomes sol. in alk. developer by the decompn. caused by an acid, (B) a compd. generating acid by actinic ray or radiation, and (C) a nitrogen compd. contg. .gtoreq.1 F atom. The compn. gives clear pattern without development defect.

IT **431062-22-5P**

(pos. photoresist contg. F-contg. alkali-sol. polymer, acid generator, and F-contg. nitrogen compd.)

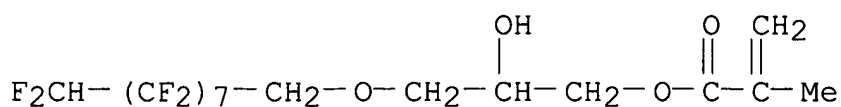
RN 431062-22-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

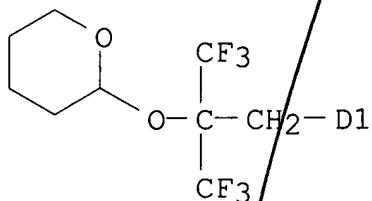
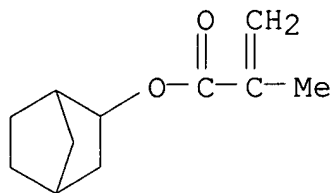


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

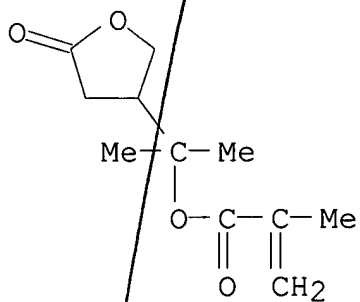
CCI IDS



CM 3

CRN 280566-59-8

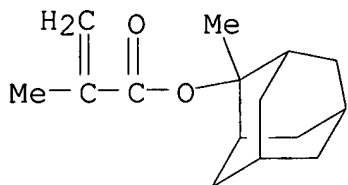
CMF C11 H16 O4



CM 4

CRN 177080-67-0

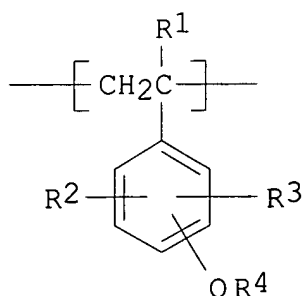
CMF C15 H22 O2

IT **431062-22-5P**

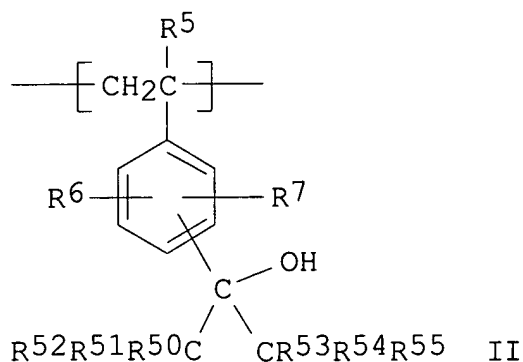
(pos. photoresist contg. F-contg. alkali-sol. polymer, acid generator, and F-contg. nitrogen compd.)

L6 ANSWER 17 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
 2003:152372 Document No. 138:212786 Vacuum UV-sensitive resin
 composition containing ionic compound reactive towards acid. Kanna,
 Shinichi; Mizutani, Kazuyoshi (Fuji Photo Film Co., Ltd., Japan).
 Jpn. Kokai Tokkyo Koho JP 2003057826 A2 20030228, 66 pp.
 (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-250535 20010821.

GI



I



II

AB The title compn. contains a resin which increases the soly. towards an alkali developer by an acid and has repeating unit I, II, and [CH(R17a)-C(R17)(COOR18)] (R1,5,R17, R17a = H, halo, cyano, alkyl; R2,3,6,7 = H, halo, cyano, hydroxyl, etc.; R50-55 = H, F, alkyl; R4 = -C(R11)(R12)(R13), -C(R14)(R15)(-O-R16); R11-13 = alkyl, cycloalkyl, alkenyl, etc.; R14-15 = H, alkyl; R16 = alkyl, cycloalkyl, aralkyl, aryl; R18 = -C(R18d)(R18e)(R18f), -C(R18d)(R18e)(OR18g); R18d-g = H, alkyl, aralkyl, aryl), an actinic ray- or radiation-sensitive acid generator, ionic compd. B+A2- (A2= anionic part; B = cationic part), a solvent, and a surfactant,

wherein the acid (A1H) generated by an acid generator and the ionic compd. follow the reaction equation: $A1H + B+A2 \rightarrow B+A2^- + A2H$. The compn. shows the good light transmittance towards .ltoreq.160 nm light and the decreased dependence on the exposure time and provides the resist of the good line edge roughness.

IT **500212-82-8P**

(resin; Vacuum UV-sensitive resin compn. contg. ionic compd. reactive towards acid)

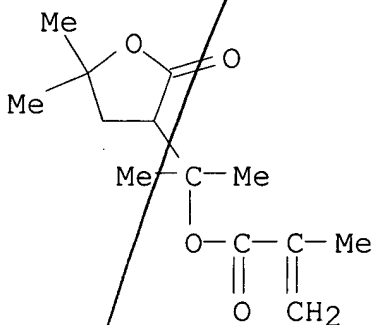
RN 500212-82-8 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5,5-dimethyl-2-oxo-3-furanyl)ethyl ester, polymer with .alpha.-(difluoromethyl)-4-ethenyl-.alpha.-(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 500212-81-7

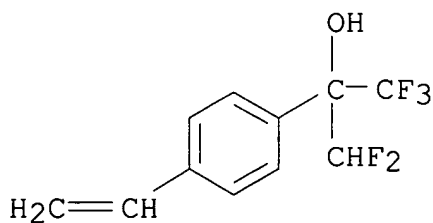
CMF C13 H20 O4



CM 2

CRN 485390-53-2

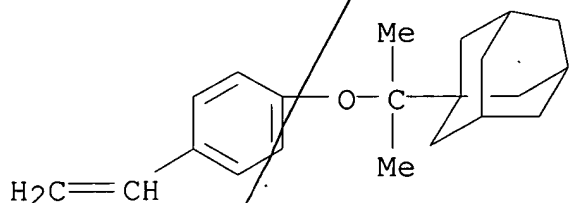
CMF C11 H9 F5 O



CM 3

CRN 430437-25-5

CMF C21 H28 O

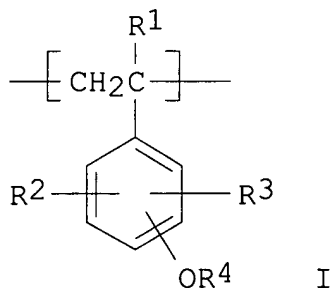
IT **500212-82-8P**

(resin; Vacuum UV-sensitive resin compn. contg. ionic compd.
reactive towards acid)

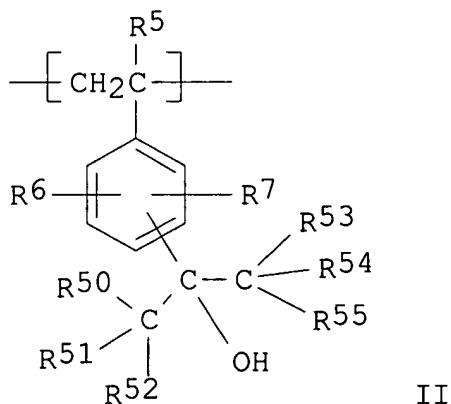
L6 ANSWER 18 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2003:35187 Document No. 138:98199 Positive-working vacuum UV-sensitive
photoresist material composition containing specific resin. Kanna,
Shinichi; Mizutani, Kazuyoshi (Fuji Photo Film Co., Ltd., Japan).
Jpn. Kokai Tokkyo Koho JP 2003015298 A2 20030115, 39 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-202241 20010703.

GI



I



II

AB The title compn. contains a resin increasing soly. toward an alkali
soln. by an acid, a photoacid generator, and a solvent, wherein the

resin contains repeating unit I, II, and $[-CH(R17a)-C(R17)(COOR18)-]$ (R1,5,17a,17 = H, halo, cyano, alkyl; R2,3,6,7 = H, halo, cyano, hydroxyl, etc.; R50-55 = H, F, alkyl; R4 = $-C(R11)(R12)(R13), -C(R14)(R15)(-O-R16)$; R18 = $-C(R18d)(R18e)(R18f), -C(R18d)(R18e)-O-(R18g)$; R11-13 = alkyl, cycloalkyl, alkenyl, aralkyl, aryl; R14-15 = H, alkyl; R16 = alkyl, cycloalkyl, aralkyl, aryl). The compn. provides the good transparency towards vacuum UV and provides the good soly. contrast towards developers.

IT **485390-54-3P**

(resin; pos.-working vacuum UV-sensitive photoresist material compn. contg. specific resin)

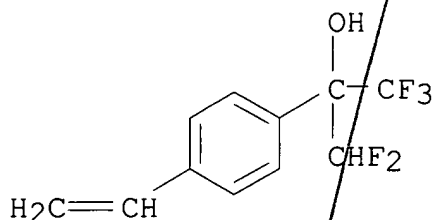
RN 485390-54-3 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with .alpha.-(difluoromethyl)-4-ethenyl-.alpha.-(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 485390-53-2

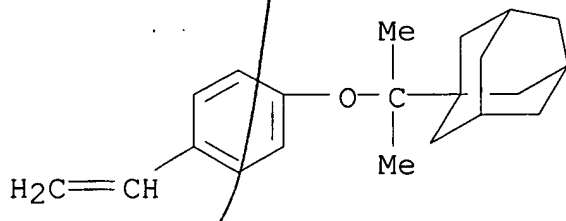
CMF C11 H9 F5 O



CM 2

CRN 430437-25-5

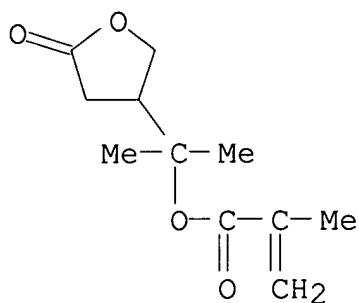
CMF C21 H28 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4

IT **485390-54-3P**

(resin; pos.-working vacuum UV-sensitive photoresist material
compn. contg. specific resin)

L6 ANSWER 19 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2002:976089 Document No. 138:47317 Positive radiation-sensitive resist compositions having high sensitivity and high resolution and their sub-quarter-micron lithography. Nio, Hiroyuki; Tamura, Kazutaka; Senoo, Masahide (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2002372785 A2 20021226, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-103440 20020405. PRIORITY: JP 2001-113820 20010412.

AB The resist compns., useful for patterning with electron beam, contain (a) as acid-labile alkali-developable binders, polymers contg. structure units bearing lactone residues and structure units bearing arom. rings and (b) radiation-sensitive acid generators. Thus, a resist compn. comprising 3 g .alpha.-methacryloyloxypantolactone-2-phenylpropyl methacrylate copolymer (reaction ratio 5.9:4) with Mw 33,000, 300 mg triphenylsulfonium triflate, and Me Cellosolve acetate was spin-coated on a HMDS-treated Si wafer, heated at 100.degree. for 2 min to give a 0.5-.mu.m thick layer, subjected to patternwise exposure to electron beam, and developed with 2.38% Me4NOH to give 0.20-.mu.m width patterns (exposure 2.2 .mu.C/cm2).

IT **478866-28-3P**

(pos. electron-beam resist compns. and their sub-quarter-micron lithog.)

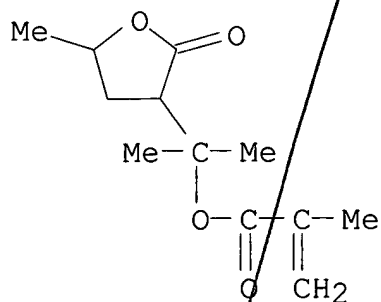
RN 478866-28-3 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with 1-methyl-1-(tetrahydro-5-methyl-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 478866-27-2

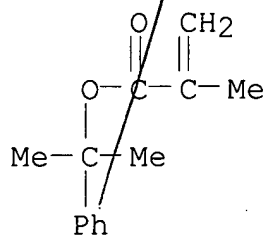
CMF C12 H18 O4



CM 2

CRN 54554-17-5

CMF C13 H16 O2

IT **478866-28-3P**

(pos. electron-beam resist compns. and their sub-quarter-micron lithog.)

L6 ANSWER 20 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2002:769998 Document No. 137:302221 Deep-UV positive-working photoresist composition showing improved contact hole resolution and sidelobe suppression. Sato, Kenichiro (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002296782 A2 20021009, 77 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-101521 20010330.

AB The title pos.-working photoresist compn. comprises (A) an acid-decomposable resin comprised of an aliph. cyclic hydrocarbon structural repeating unit and a crosslinking structural repeating unit -OC(R1)(R2)O- [R1, R2 = H, C1-4-alkyl], and (B) a photoacid

generator. The photoresist compn. is esp. suitable for the photolithog. with the 193 nm ArF excimer laser.

IT **469880-24-8P**

(deep-UV pos.-working photoresist compn. showing improved contact hole resolu. and side-lobe suppression)

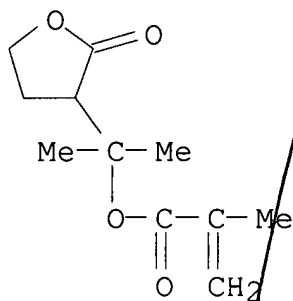
RN 469880-24-8 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with ethylidenebis(oxy-2,1-ethanediyl) di-2-propenoate, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 469880-23-7

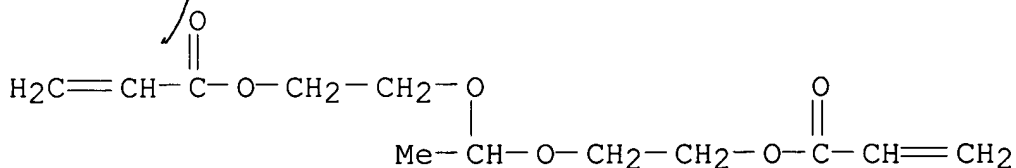
CMF C11 H16 O4



CM 2

CRN 403498-97-5

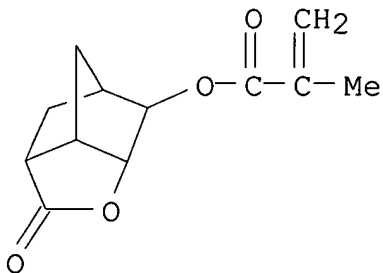
CMF C12 H18 O6



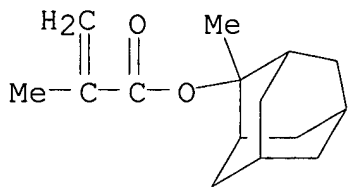
CM 3

CRN 254900-07-7

CMF C12 H14 O4



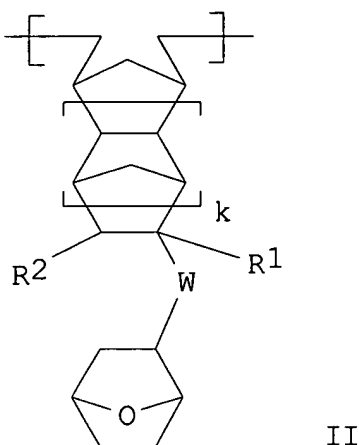
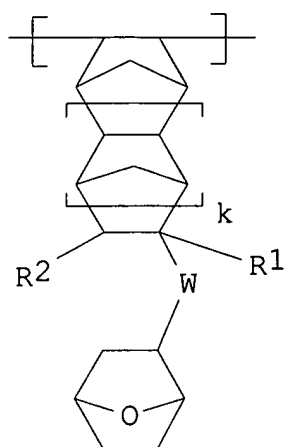
CM 4

CRN 177080-67-0
CMF C15 H22 O2IT **469880-24-8P**

(deep-UV pos.-working photoresist compn. showing improved contact hole resolu. and side-lobe suppression)

L6 ANSWER 21 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2002:716915 Document No. 137:270511 Polymers, resist materials, and
pattern formation method. Nishi, Tsunehiro; Hasegawa, Koji;
Nakashima, Mutsuo (Shin-Etsu Chemical Co., Ltd., Japan). U.S. Pat.
Appl. Publ. US 2002132182 A1 20020919. 37 pp. (English). CODEN:
USXXCO. APPLICATION: US 2002-50478 20020116. PRIORITY: JP
2001-8613 20010117.

GI



AB The present invention provides (1) a polymer which has excellent reactivity, rigidity and adhesion to the substrate, and undergoes a low degree of swelling during development, (2) a resist material which uses this polymer as the base resin and hence exhibits much higher resolving power and etching resistance than conventional resist materials, and (3) a pattern formation method using this resist material. Specifically, the present invention provides a novel polymer contg. repeating units represented by I, II ($R_1 = H, Me, CH_2CO_2R_3$; $R_2 = H, Me, CO_2R_3$; $R_3 = C_1-15$ alkyl; $W = C_2-20$ divalent hydrocarbon radical, which may have ≥ 1 ester linkage in its structure and may further be substituted by one or more other at. group contg. a heteroatom; $k = 0, 1$) and having a wt.-av. mol. wt. of 1,000-500,000, a resist material using the polymer as a base resin, and a pattern formation method using the resist material.

IT **461671-55-6P**

(polymers, photoresist materials, and pattern formation method)

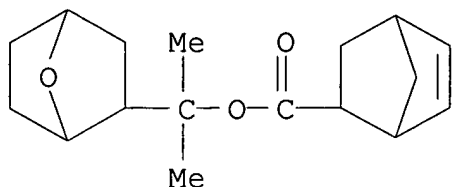
RN 461671-55-6 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 461671-54-5

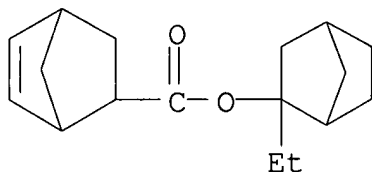
CMF C17 H24 O3



CM 2

CRN 330596-01-5

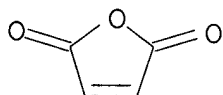
CMF C17 H24 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3

IT **461671-55-6P**

(polymers, photoresist materials, and pattern formation method)

L6 ANSWER 22 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2002:407174 Document No. 136:409030 Radiation-sensitive chemically amplified positive resists and lithography using the same. Nio, Hiroyuki; Tamura, Kazutaka; Senoo, Masahide (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2002156760 A2 20020531, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-352488 20001120.

AB The resists, showing good sensitivity and high pattern resoln., contain (a) compds. or acrylate polymers (Markush given) having carboxyls which are protected with .gtoreq.3-arom.-ring-bearing acid-leaving protective groups and (b) radiation-sensitive acid

generators.

IT **431943-52-1**

(chem. amplified pos. resists contg. polymers bearing
acid-leaving bulky protective groups for electron beam lithog.)

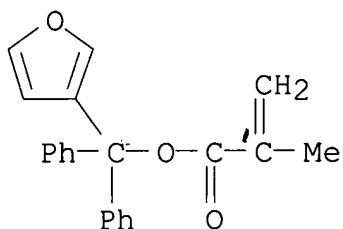
RN 431943-52-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-furanyldiphenylmethyl ester,
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 431943-51-0

CMF C21 H18 O3



IT **431943-52-1**

(chem. amplified pos. resists contg. polymers bearing
acid-leaving bulky protective groups for electron beam lithog.)

L6 ANSWER 23 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2002:392162 Document No. 136:409022 Positive resist composition.
Aoi, Toshiaki; Yasunami, Shoichiro; Mizutani, Kazuyoshi; Kanna,
Shinichi (Fuji Photo Film Co., Ltd., Japan). U.S. Pat. Appl. Publ.
US 2002061464 A1 20020523, 56 pp. (English). CODEN: USXXCO.
APPLICATION: US 2001-961281 20010925. PRIORITY: JP 2000-292537
20000926; JP 2000-379284 20001213; JP 2001-62158 20010306; JP
2001-202298 20010703.

AB The present invention relates to a pos. resist compn. comprising:
(A) a fluorine group-contg. resin having at least one fluorine atom
on at least one of the main chain and the side chain of the polymer
skeleton; and having a group capable of decomp. under the action of
an acid to increase the soly. in an alkali developer; (B) a compd.
capable of generating an acid upon irradiation with one of actinic ray
and radiation; and (C) a surfactant contg. at least one of a silicon
atom and a fluorine atom. The present invention provides a pos.
photoresist compn. suitable for use in the microlithog. process in
the prodn. of VLSI or high-capacity microchip, or in other
photo-fabrication processes. The invention pos. photoresist compn.
is capable of forming a highly definite pattern using a vacuum UV
ray of < 160 nm.

IT **431062-22-5P**

(fluorine group-contg. resin for pos. resist compn.)

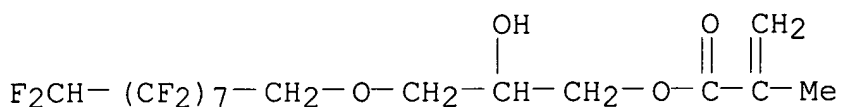
RN 431062-22-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

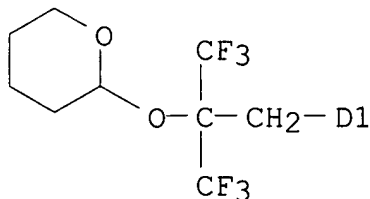
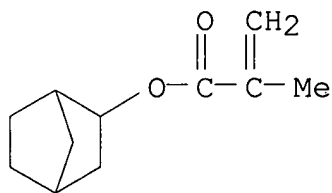


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

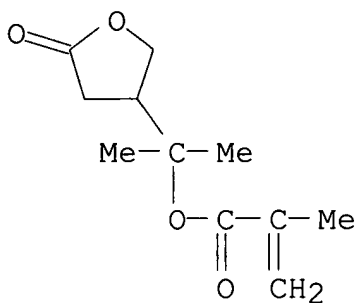
CCI IDS



CM 3

CRN 280566-59-8

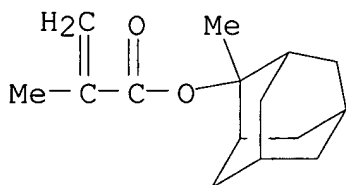
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IT **431062-22-5P**
(fluorine group-contg. resin for pos. resist compn.)

L6 ANSWER 24 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2001:935894 Document No. 136:77253 Positive type radiation-sensitive composition and process for producing pattern with the same. Niwa, Hiroyuki; Tamura, Kazutaka; Senoo, Masahide (Toray Industries, Inc., Japan). PCT Int. Appl. WO 2001098833 A1 20011227, 57 pp.
DESIGNATED STATES: W: KR, SG, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2001-JP315 20010119. PRIORITY: JP 2000-187335 20000622; JP 2000-192298 20000627.

AB The invention relates to a pos. type radiation-sensitive compn. comprising (A) a compd. in which an alkali-sol. group comprising a carboxyl group or phenolic hydroxyl group has been protected by an acid-eliminable group (a) which is any of the following (a1) to

✓
(use
22/40
instead)

(a3), and (B) an acid generator which generates an acid upon irradiation with a radiation; and a method of forming a resist pattern using the compn. (a1) The acid-eliminable group (a) is $-\text{CR}_3$, provided that at least two of the R's are arom. rings. (The alkali-sol. group is a carboxyl group.). (a2) The acid-eliminable group (a) is $-\text{CR}_3$, provided that at least one of the R's is an arom. ring having an electron-donating group. (a3) The acid-eliminable group (a) has an alkali-sol. group (a') or has an alkali-sol. group (a'') protected by an acid-eliminable group.

IT **383908-16-5**

(pos. type radiation-sensitive compn. and process for producing pattern with the same)

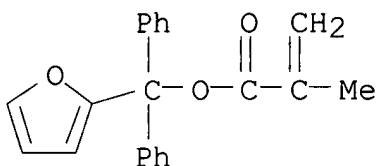
RN 383908-16-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-furanyldiphenylmethyl ester, polymer with 4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

CM 1

CRN 383908-15-4

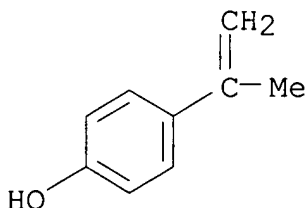
CMF C21 H18 O3



CM 2

CRN 4286-23-1

CMF C9 H10 O

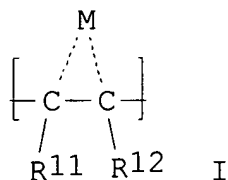


IT **383908-16-5**

(pos. type radiation-sensitive compn. and process for producing pattern with the same)

L6 ANSWER 25 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2001:635653 Document No. 135:218724 Positive-working photoresist
composition containing allylsilane-based resin. Sato, Kenichiro
(Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
2001235865 A2 20010831, 63 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2000-46129 20000223.

GI



AB The photoresist compn. comprises (A) a resin having repeating unit
CH₂CH(CH₂)_nSiR₁R₂R₃ (R₁-R₃ = alkyl, haloalkyl, halo, alkoxy,
trialkylsilyl, or trialkylsilyloxy; n = 0 or 1) and I (M = bond for
linking 2 C atoms and forming an alicyclic structure which may have
a substituent; R₁₁ and R₁₂ = H, cyano, halo, or (substituted) alkyl)
and (B) a compd. for generating an acid by irradiation of actinic ray or
radiation. The compn. provides resist pattern having minimized line
width variation by SEM observation in semiconductor device
fabrication.

IT **357400-47-6**
(pos.-working photoresist compn. contg. allylsilane-based
acid-decomposable resin)

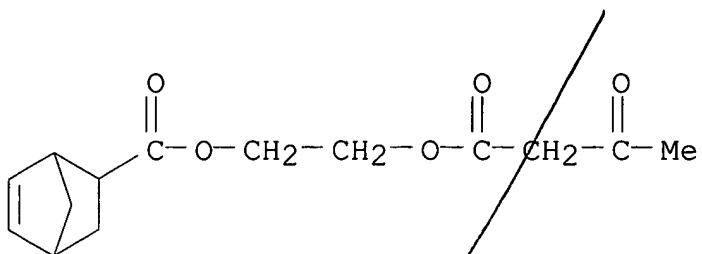
RN 357400-47-6 ZCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-(1,3-dioxobutoxy)ethyl
ester, polymer with 2,5-furandione, 1,1,1,3,3,3-hexamethyl-2-(2-
propenyl)-2-(trimethylsilyl)trisilane and 1-methyl-1-(tetrahydro-5-
oxo-3-furanyl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI)
(CA INDEX NAME)

CM 1

CRN 357400-46-5

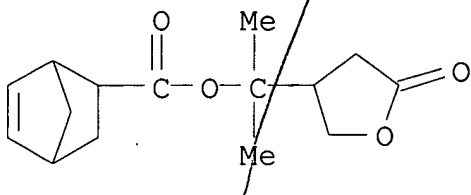
CMF C14 H18 O5



CM 2

CRN 357400-45-4

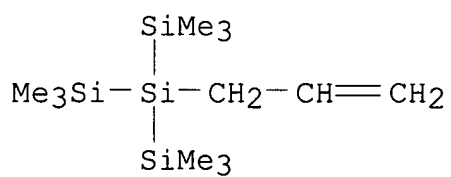
CMF C15 H20 O4



CM 3

CRN 136649-77-9

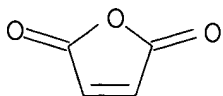
CMF C12 H32 Si4



CM 4

CRN 108-31-6

CMF C4 H2 O3



IT **357400-47-6**

(pos.-working photoresist compn. contg. allylsilane-based acid-decomposable resin)

L6 ANSWER 26 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2001:98663 Document No. 134:170820 Positive-working silicone-containing photosensitive compositions. Yasunami, Shoichiro (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001033974 A2 20010209, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-202179 19990715.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The compns. contain (a) alk.-sol. and water-insol. polymer comprising of I and/or II (X = COR, CH(OH)R, carboxyl; R = H, (un)substituted hydrocarbon; R1-5 = OH, (un)substituted (cyclo)alkyl, alkoxy, alkenyl, aralkyl, Ph; Y = alkyl, alkoxy, siloxyl, R0 = H, halogen, (un)substituted aliph. or arom. hydrocarbon; l, m, n, q = 0, pos. no.; p = pos. no.), (b) compds. generating acid on irradiation of active ray or radiant ray, (c) polymers contg. acid-decomposable groups and showing increase of soly. to alk. developer on reaction with acid, and (d) Si-contg. nonpolymeric compd. contg. acid-decomposable groups and showing increase of soly. to alk. developer on reaction with acid. Far UV photoresists with high sensitivity and resolu. are obtained.

IT **280566-60-1**

(pos.-working silicon-contg. photoresists for micropattern formation in semiconductor device fabrication)

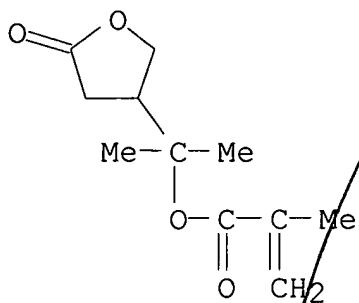
RN 280566-60-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

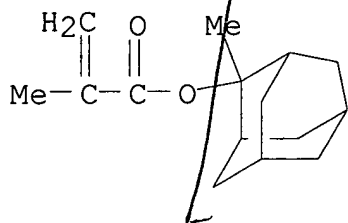
CMF C11 H16 O4



CM 2

CRN 177080-67-0

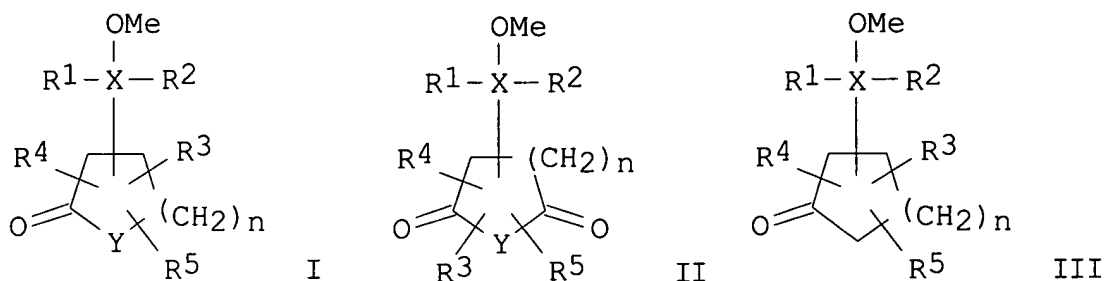
CMF C15 H22 O2

IT **280566-60-1**

(pos.-working silicon-contg. photoresists for micropattern
formation in semiconductor device fabrication)

L6 ANSWER 27 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
2000:686614 Document No. 133:274251 Positively-working photoresist
composition for far-ultraviolet ray photolithography. Kodama,
Kunihiko; Sato, Kenichiro; Aogo, Toshiaki (Fuji Photo Film Co.,
Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000267287 A2 20000929, 62
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-186809
19990630. PRIORITY: JP 1998-263392 19980917; JP 1999-6662 19990113.

GI



AB The compn. contains a compd. discharging acids under active ray or radiation irradiation and a polymer whose solubility in alk. developer is enhanced because of decomposition of the polymer by the resulting acids. The polymer involves carboxyl-protecting alc. units I, II, and/or III [R1, R2 = H, (substituted) linear, branched, or cyclic alkyl; R1 and R2 may form single or polycyclic group which may contain O, S, N, ketone, ester, imide, or amide group; R3-R5 = H, (substituted) linear, branched, cyclic alkyl, alkoxy; 2 of R3-R5 may form single or polycyclic group as above; X = single bond, divalent group; X and R1 and/or R2 may form single or polycyclic group; Y = O, S, NH, N(OH), NR; R = alkyl; n = 1-3]. The far-UV-sensitive photoresist compn. is suitable for semiconductor device fabrication, etc.

IT **280566-60-1P 297156-25-3P 297156-27-5P**
297156-28-6P 297156-30-0P 297156-33-3P
297156-35-5P 297156-39-9P

(far UV-sensitive photoresist compn. containing protected carboxy-substituted polymer)

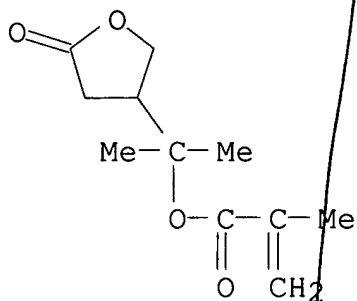
RN 280566-60-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

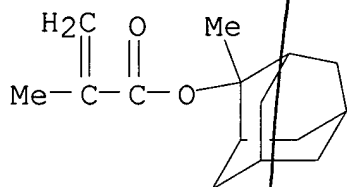
CMF C11 H16 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



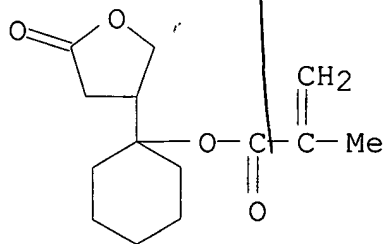
RN 297156-25-3 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

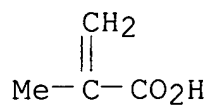
CRN 297156-24-2

CMF C14 H20 O4



CM 2

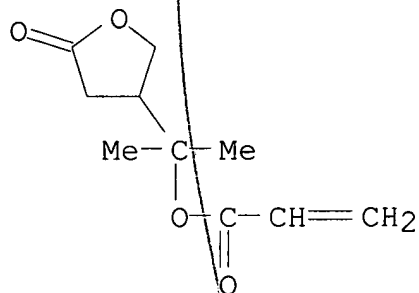
CRN 79-41-4
CMF C4 H6 O2



RN 297156-27-5 ZCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-butyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-propenoate (9CI) (CA INDEX NAME)

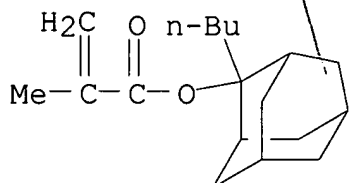
CM 1

CRN 297156-26-4
CMF C10 H14 O4



CM 2

CRN 209982-54-7
CMF C18 H28 O2



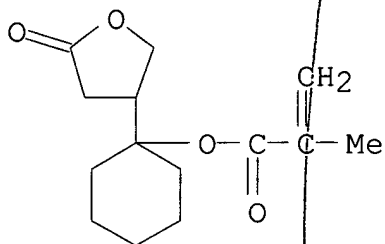
RN 297156-28-6 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl ester, polymer with (3R,3aS,6R,7R,8aS)-octahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-6-yl 2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 297156-24-2

CMF C14 H20 O4

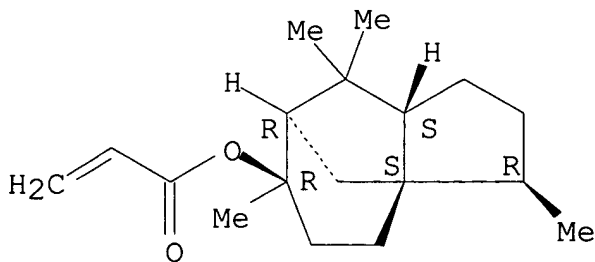


CM 2

CRN 132603-00-0

CMF C18 H28 O2

Absolute stereochemistry.



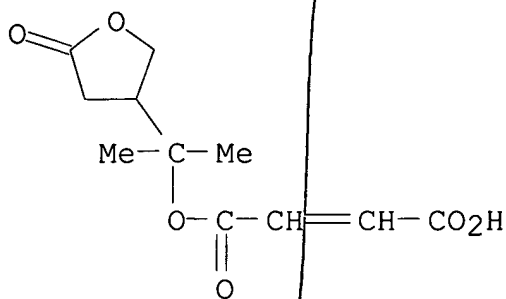
RN 297156-30-0 ZCAPLUS

CN 2-Butenedioic acid, mono[1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl] ester, polymer with 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-29-7

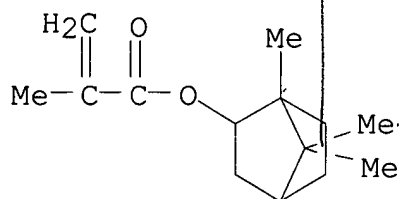
CMF C11 H14 O6



CM 2

CRN 16868-12-5

CMF C14 H22 O2



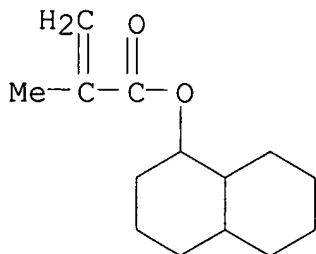
RN 297156-33-3 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, decahydro-1-naphthalenyl ester, polymer
with 1-methyl-1-(tetrahydro-2,5-dioxo-3-furanyl)ethyl 2-propenoate
(9CI) (CA INDEX NAME)

CM 1

CRN 297156-32-2

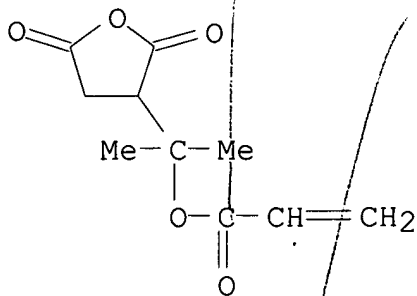
CMF C14 H22 O2



CM 2

CRN 297156-31-1

CMF C10 H12 O5



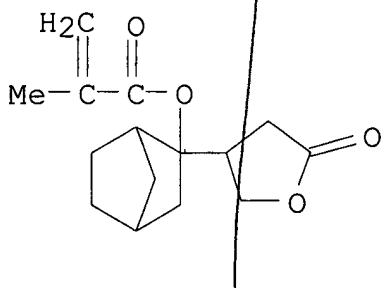
RN 297156-35-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
2-(tetrahydro-5-oxo-3-furanyl)bicyclo[2.2.1]hept-2-yl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-34-4

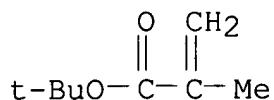
CMF C15 H20 O4



CM 2

CRN 585-07-9

CMF C8 H14 O2



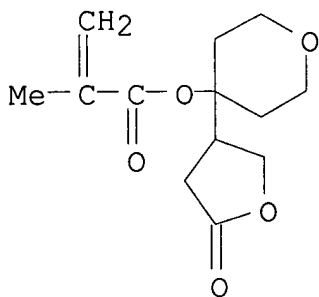
RN 297156-39-9 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl
2-methyl-2-propenoate and tetrahydro-4-(tetrahydro-5-oxo-3-furanyl)-
2H-pyran-4-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-38-8

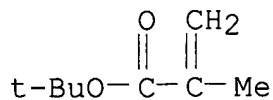
CMF C13 H18 O5



CM 2

CRN 585-07-9

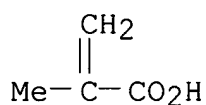
CMF C8 H14 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2

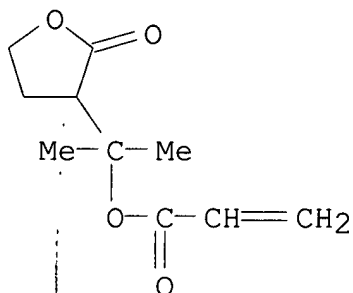


IT 239784-43-1P 280566-59-8P 297156-24-2P
 297156-26-4P 297156-29-7P 297156-31-1P
 297156-34-4P 297156-38-8P 297156-60-6P
 297156-61-7P 297156-63-9P 297156-65-1P
 297156-66-2P 297156-68-4P 297156-70-8P
 297156-72-0P 297156-73-1P 297156-74-2P
 297156-75-3P 297156-76-4P 297156-77-5P
 297156-80-0P

(monomer; for far UV-sensitive photoresist compn. contg.
 protected carboxy-substituted polymer)

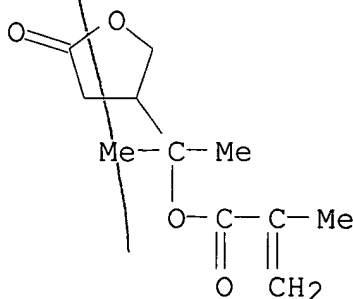
RN 239784-43-1 ZCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester
 (9CI) (CA INDEX NAME)



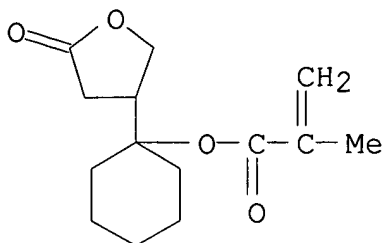
RN 280566-59-8 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



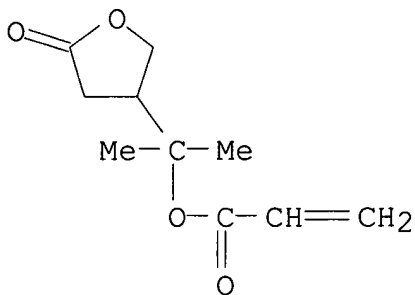
RN 297156-24-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl ester (9CI) (CA INDEX NAME)



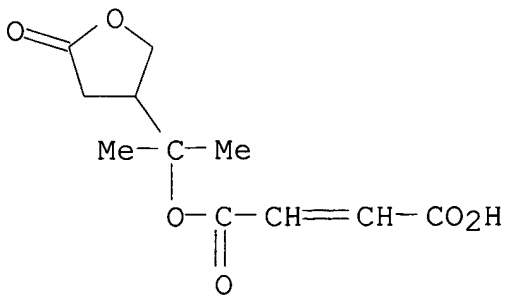
RN 297156-26-4 ZCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



RN 297156-29-7 ZCAPLUS

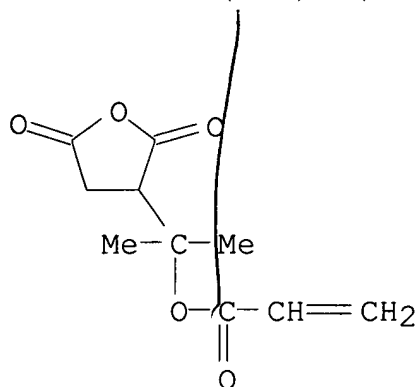
CN 2-Butenedioic acid, mono[1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl] ester (9CI) (CA INDEX NAME)



RN 297156-31-1 ZCAPLUS

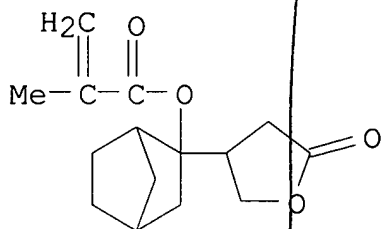
CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2,5-dioxo-3-furanyl)ethyl

ester (9CI) (CA INDEX NAME)



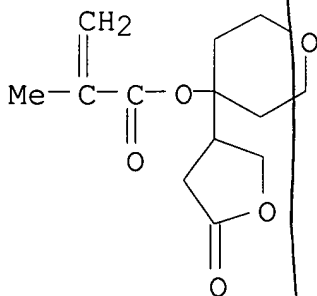
RN 297156-34-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(tetrahydro-5-oxo-3-furanyl)bicyclo[2.2.1]hept-2-yl ester (9CI) (CA INDEX NAME)



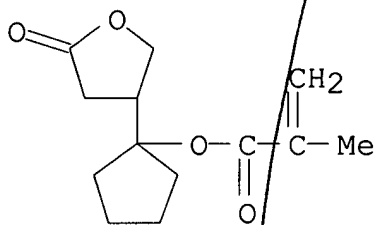
RN 297156-38-8 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, tetrahydro-4-(tetrahydro-5-oxo-3-furanyl)-2H-pyran-4-yl ester (9CI) (CA INDEX NAME)



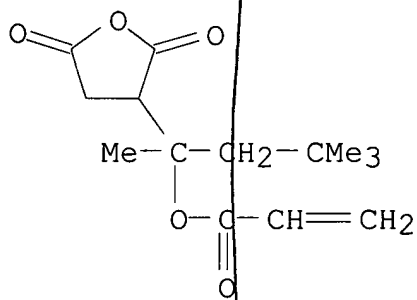
RN 297156-60-6 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-5-oxo-3-furanyl)cyclopentyl ester (9CI) (CA INDEX NAME)



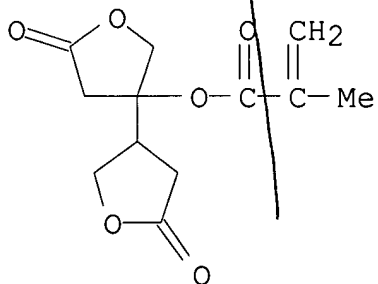
RN 297156-61-7 ZCAPLUS

CN 2-Propenoic acid, 1,3,3-trimethyl-1-(tetrahydro-2,5-dioxo-3-furanyl)butyl ester (9CI) (CA INDEX NAME)



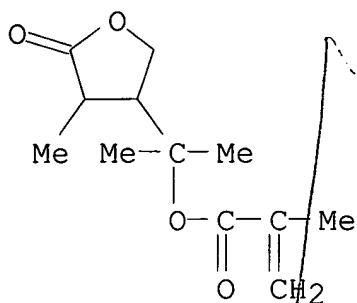
RN 297156-63-9 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, octahydro-5,5'-dioxo[3,3'-bifuran]-3-yl ester (9CI) (CA INDEX NAME)



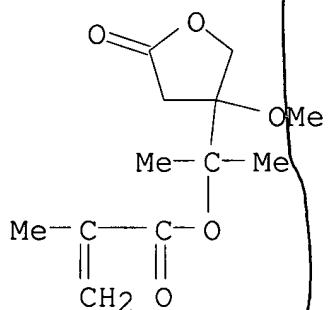
RN 297156-65-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-4-methyl-5-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



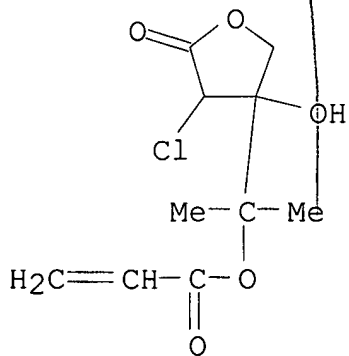
RN 297156-66-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-3-methoxy-5-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



RN 297156-68-4 ZCAPLUS

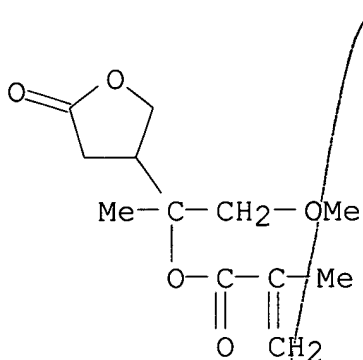
CN 2-Propenoic acid, 1-(4-chlorotetrahydro-3-hydroxy-5-oxo-3-furanyl)-1-methylethyl ester (9CI) (CA INDEX NAME)



RN 297156-70-8 ZCAPLUS

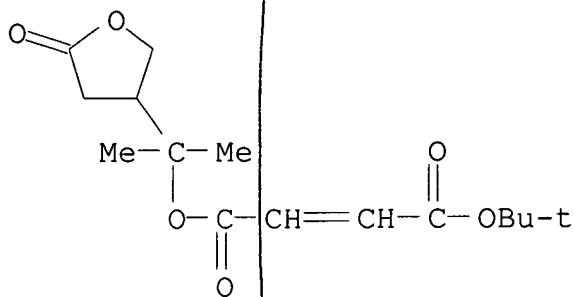
CN 2-Propenoic acid, 2-methyl-, 2-methoxy-1-methyl-1-(tetrahydro-5-oxo-

3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



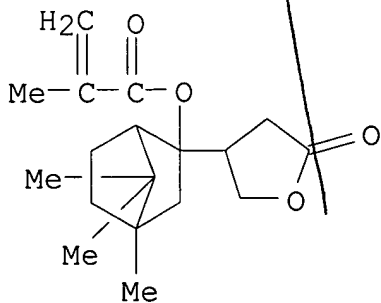
RN 297156-72-0 ZCAPLUS

CN 2-Butenedioic acid, 1,1-dimethylethyl 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



RN 297156-73-1 ZCAPLUS

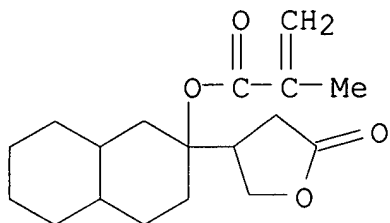
CN 2-Propenoic acid, 2-methyl-, 4,7,7-trimethyl-2-(tetrahydro-5-oxo-3-furanyl)bicyclo[2.2.1]hept-2-yl ester (9CI) (CA INDEX NAME)



RN 297156-74-2 ZCAPLUS

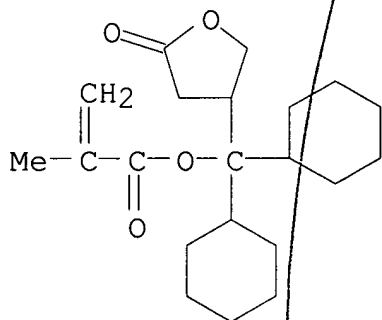
CN 2-Propenoic acid, 2-methyl-, decahydro-2-(tetrahydro-5-oxo-3-

furanyl)-2-naphthalenyl ester (9CI) (CA INDEX NAME)



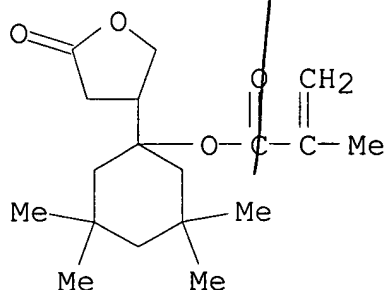
RN 297156-75-3 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, dicyclohexyl(tetrahydro-5-oxo-3-furanyl)methyl ester (9CI) (CA INDEX NAME)



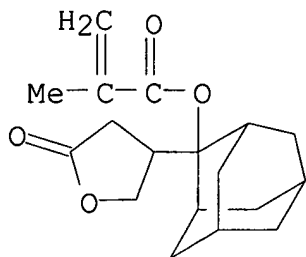
RN 297156-76-4 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3,3,5,5-tetramethyl-1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl ester (9CI) (CA INDEX NAME)



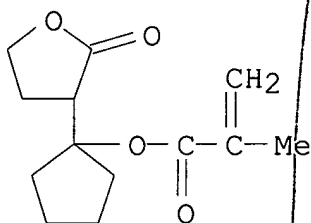
RN 297156-77-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(tetrahydro-5-oxo-3-furanyl)tricyclo[3.3.1.1^{3,7}]dec-2-yl ester (9CI) (CA INDEX NAME)



RN 297156-80-0 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-2-oxo-3-furanyl)cyclopentyl ester (9CI) (CA INDEX NAME)



IT 280566-60-1P 297156-25-3P 297156-27-5P
297156-28-6P 297156-30-0P 297156-33-3P
297156-35-5P 297156-39-9P

(far UV-sensitive photoresist compn. contg. protected
carboxy-substituted polymer)

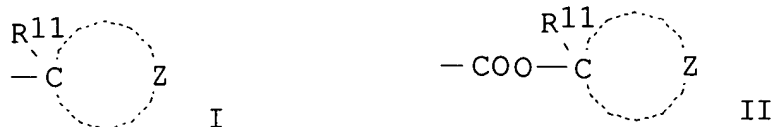
IT 239784-43-1P 280566-59-8P 297156-24-2P
297156-26-4P 297156-29-7P 297156-31-1P
297156-34-4P 297156-38-8P 297156-60-6P
297156-61-7P 297156-63-9P 297156-65-1P
297156-66-2P 297156-68-4P 297156-70-8P
297156-72-0P 297156-73-1P 297156-74-2P
297156-75-3P 297156-76-4P 297156-77-5P
297156-80-0P

(monomer; for far UV-sensitive photoresist compn. contg.
protected carboxy-substituted polymer)

L6 ANSWER 28 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

2000:474297 Document No. 133:96798 Pattern formation using
positive-working photoresist. Sato, Kenichiro; Nakao, Hajime;
Kawabe, Yasumasa (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai
Tokkyo Koho JP 2000194135 A2 20000714, 32 pp. (Japanese). CODEN:
JKXXAF. APPLICATION: JP 1998-371210 19981225.

GI



AB The title process comprises the steps of (i) coating, on a substrate, a pos.-working photoresist compn. for far UV ray exposure, contg. (a) a compd. which generates an acid by irradiation with activating ray or radiation and (b) a resin which contains alkali-sol. groups protected with .gtoreq.1 of the groups having alicyclic hydrocarbon structures I, CR12R13R14, CH(OR15)R16, CR19R21CR17:CR18R20, CR22R25CHR23COR24, and II (R11 = Me, Et, Pr, iso-Pr, Bu, iso-Bu, sec-Bu; Z = atoms required to form an alicyclic hydrocarbon group along with the C atom; R12-16 = C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, .gtoreq.1 of R12-14 and either R15 or R16 are alicyclic hydrocarbons; R17-21 = H, C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, .gtoreq.1 of R17-21 is an alicyclic hydrocarbon, either R19 or R21 is a C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon; R22-25 = C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, .gtoreq.1 of R22-25 is an alicyclic hydrocarbon) and is cleaved by the action of acid to increase the soly. to alkali, (ii) patternwise exposing the coating to activating ray or radiation, and (iii) developing the exposed coating with an aq. org. alkali soln. in the presence of a surfactant. High resolu. resist patterns showing improved coarse-dense dependence are formed by using far UV rays, esp., ArF excimer laser beams.

IT **280566-60-1P**

(photoresist compn. contg. acid generator and polymer with alicyclic protective group)

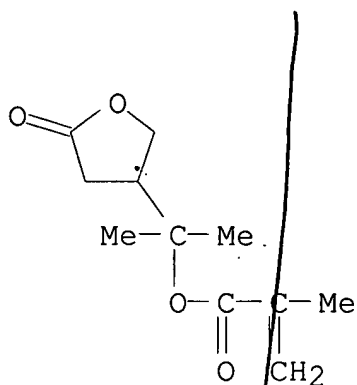
RN 280566-60-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

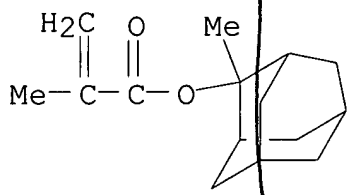
CMF C11 H16 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2

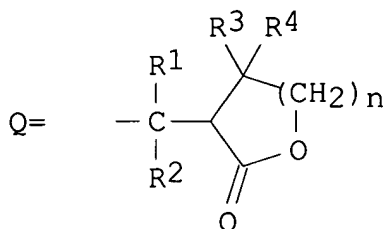
IT **280566-60-1P**

(photoresist compn. contg. acid generator and polymer with
alicyclic protective group)

L6 ANSWER 29 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1999:519010 Document No. 131:191866 Radiation-sensitive resin
composition for chemically amplified photoresist. Suwa, Mitsufumi;
Iwasawa, Haruo; Yamamoto, Masafumi; Kajita, Toru (JSR Co., Ltd.,
Japan). Jpn. Kokai Tokkyo Koho JP 11223950 A2 19990817 Heisei, 23
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-37944
19980205.

GI



AB The compn. comprises (A) an alkali insol. or slightly alkali sol. resin having a lactone ring-contg. group Q (R1-4 = H, C1-6 linear or branched alkyl, 5- to 8-membered cyclic alkyl; R1 and R2 or R3 and R4 may form 5- to 8-membered cyclic alkyl; n = 1-4) which releases by acids, and when the group itself and/or the lactone ring releases, the resin becomes alkali sol. and (B) a radiation-sensitive acid generator. The compn. has high transparency and resoln. to radiation, and is esp. useful for manufg. semiconductor devices.

IT **239784-46-4P 239784-47-5P 239784-81-7P**

(radiation-sensitive compn. contg. resin having acid-releasable group with lactone ring for chem. amplified photoresist)

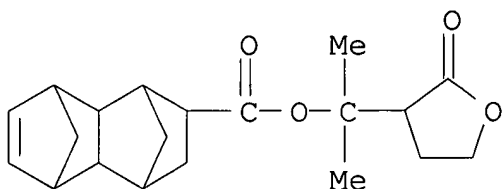
RN 239784-46-4 ZCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, 1,2,3,4,4a,5,8,8a-octahydro-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 239784-42-0

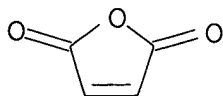
CMF C20 H26 O4



CM 2

CRN 108-31-6

CMF C4 H2 O3



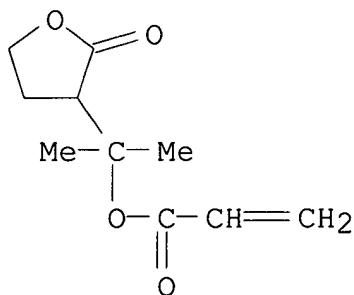
RN 239784-47-5 ZCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with tricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-43-1

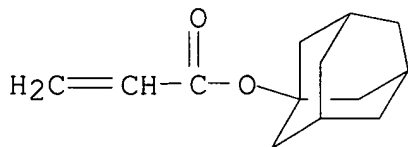
CMF C10 H14 O4



CM 2

CRN 121601-93-2

CMF C13 H18 O2



RN 239784-81-7 ZCAPLUS

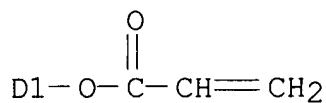
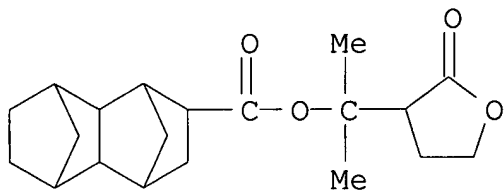
CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with tricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-79-3

CMF C23 H30 O6

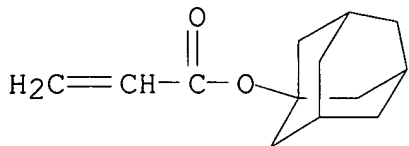
CCI IDS



CM 2

CRN 121601-93-2

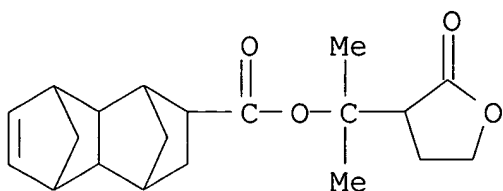
CMF C13 H18 O2

IT **239784-42-0P 239784-43-1P 239784-79-3P**

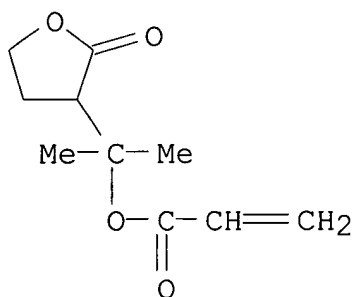
(radiation-sensitive compn. contg. resin having acid-releasable group with lactone ring for chem. amplified photoresist)

RN 239784-42-0 ZCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, 1,2,3,4,4a,5,8,8a-octahydro-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester (9CI)
(CA INDEX NAME)

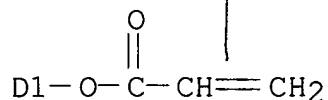
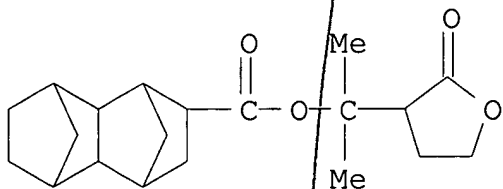


RN 239784-43-1 ZCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester
(9CI) (CA INDEX NAME)

RN 239784-79-3 ZCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



IT 239784-46-4P 239784-47-5P 239784-81-7P

(radiation-sensitive compn. contg. resin having acid-releasable group with lactone ring for chem. amplified photoresist)

IT **239784-42-0P 239784-43-1P 239784-79-3P**

(radiation-sensitive compn. contg. resin having acid-releasable group with lactone ring for chem. amplified photoresist)

L6 ANSWER 30 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1999:56806 Document No. 130:160673 Positive-working photoresist with high transparency to ArF excimer laser and high resolution. Haneda, Hideo; Sato, Kazushi; Komano, Hiroshi (Tokyo Ohka Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11015162 A2 19990122 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-171947 19970627.

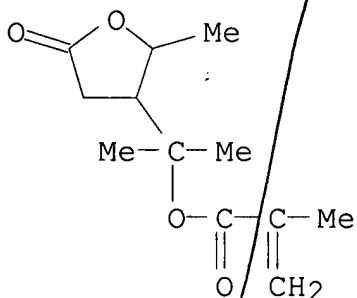
AB The photoresist comprises (A) an acrylic resin [CH₂CHR₁(CO₂CR₂R₃R₄)] (R₁ = H, Me; R₂-3 = lower alkyl; R₄ = residue of a lactone, a ketone, or an ester) whose alkali soly. is changed by acids and (B) an acid generator releasing acids by radiation. The photoresist shows good affinity to alkalis and is suited for paddle development.

IT **220196-43-0P**

(in prepn. of lactone-, ketone-, or ester-group-contg. (meth)acrylic monomer for pos. photoresist)

RN 220196-43-0 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester (9CI) (CA INDEX NAME)



IT **220196-44-1P 220196-45-2P 220196-52-1P**

(pos. photoresist contg. lactone-, ketone-, or ester-branched acrylic resin and showing good transparency to excimer laser)

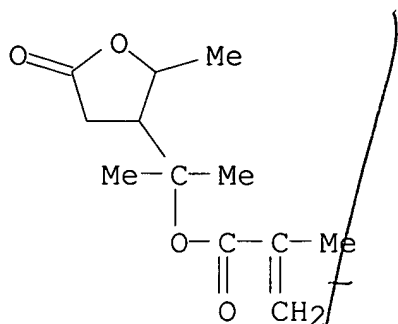
RN 220196-44-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with tetrahydro-4,4-dimethyl-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-43-0

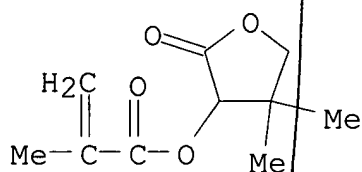
CMF C12 H18 O4



CM 2

CRN 156938-13-5

CMF C10 H14 O4



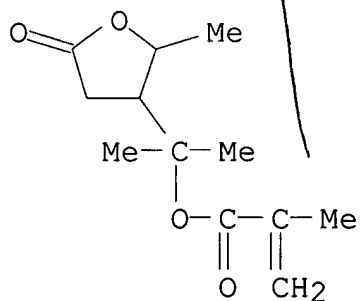
RN 220196-45-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-43-0

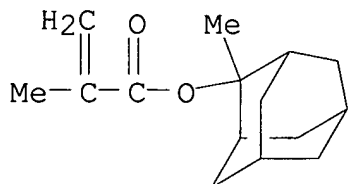
CMF C12 H18 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



RN 220196-52-1 ZCAPLUS

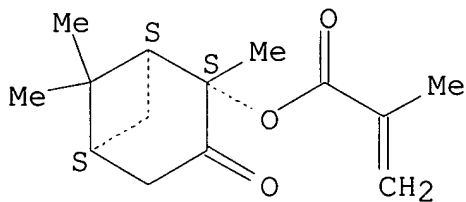
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with rel-(1R,2R,5R)-2,6,6-trimethyl-3-oxobicyclo[3.1.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-50-9

CMF C14 H20 O3

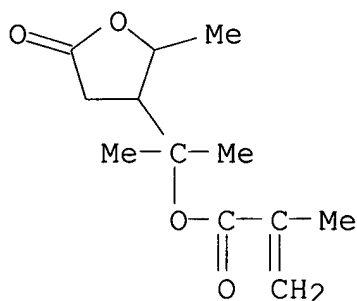
Relative stereochemistry.



CM 2

CRN 220196-43-0

CMF C12 H18 O4



IT **220196-43-0P**

(in prepn. of lactone-, ketone-, or ester-group-contg.
(meth)acrylic monomer for pos. photoresist)

IT **220196-44-1P 220196-45-2P 220196-52-1P**

(pos. photoresist contg. lactone-, ketone-, or ester-branched
acrylic resin and showing good transparency to excimer laser)

L6 ANSWER 31 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1997:226465 Document No. 126:199137 Molecular Mechanics/Continuum
Reaction Field/Quantum Mechanics Study of the Intramolecular
Diels-Alder Reaction of 2-Furfuryl Derivatives. Giessner-Prettre,
Claude; Hueckel, Samuel; Maddaluno, Jacques; Jung, Michael E.
(Laboratoire de Chimie Theorique, Universite Pierre et Marie Curie
(Paris VI), Paris, 75252, Fr.). Journal of Organic Chemistry,
62(5), 1439-1448 (English) 1997. CODEN: JOCEAH. ISSN: 0022-3263.
Publisher: American Chemical Society.

AB Computations were performed on 2-furfuryl fumarates(1) using an
integrated procedure interfacing SIBFA (sum of interactions between
fragments ab initio compute) mol. mechanics systematics and the
Langlet-Claverie continuum reaction field method. The results show
that the presence of a Me or gem-di-Me substituent on the
diene-dienophile linker and also polar solvents such as DMSO
stabilize the folded conformation precursor of the transition state
in the intramol. Diels-Alder reaction. The calcd. variations of the
energy difference between the folded and extended conformations are
in agreement with exptl. and related theor. data. A detailed anal.
of the energy contributions involved in these phenomena has been
carried out, taking into account the exptl. results. Complementary
AM1 computations have also been undertaken on the starting
materials, the transition states, and the cycloadducts. Those
confirm that the stereochem. of the lactones obtained is the
thermodynamically favored one and that the variation in the
activation barrier runs parallel to the SIBFA folding energy values.
When the ester linkage in 1 is replaced by a ketone (4), the SIBFA
results underestimate the activation by the spacer substitution
while the AM1 transition states data overestimate it. In this case,

*Use
34/40
intent*

none of these theor. approaches is completely satisfactory when compared to expt.

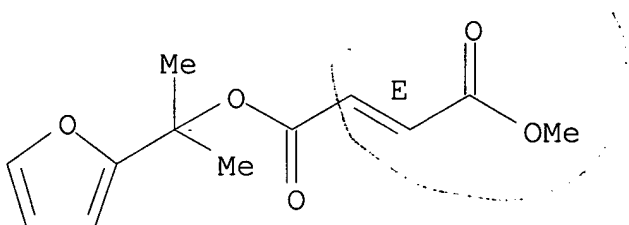
IT **120284-32-4**

(theor. study of intramol. Diels-Alder reaction of furfuryl derivs.)

RN 120284-32-4 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)-1-methylethyl methyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT **120284-32-4**

(theor. study of intramol. Diels-Alder reaction of furfuryl derivs.)

L6 ANSWER 32 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1997:79126 Document No. 126:211695 The "Facilitated Transition" hypothesis as an explanation for the gem-dialkyl effect. Parrill, Abby L.; Dolata, Daniel P. (Department of Chemistry, University of Arizona, Tucson, AZ, USA). THEOCHEM, 370(2-3), 187-202 (English) 1996. CODEN: THEODJ. ISSN: 0166-1280. Publisher: Elsevier.

AB A new technique of searching the conformational space of transition states was used to explore the cause of the rate acceleration in the gem-dialkyl effect in intramol. cyclization reactions. Several previous hypotheses were discarded and a new hypothesis was advanced based on this new data. This hypothesis, the "Facilitated Transition" hypothesis, states that increased steric hindrance reduces the overall activation energy by facilitating rotation through the transition state. The older "Reactive Rotamer" hypothesis was eliminated by generating all conformations of the starting materials using the WIZARD and MM2 computer programs and demonstrating that no relationship is found between rate increase and a change in the concn. of "reactive rotamers".

IT **120284-32-4 120284-34-6 120284-35-7**

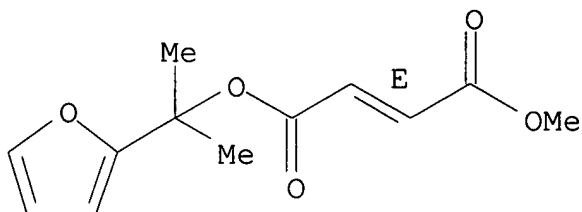
(facilitated transition hypothesis explanation for gem-dialkyl effect)

RN 120284-32-4 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)-1-methylethyl methyl ester (9CI) (CA INDEX NAME)

Use
34/40
instead

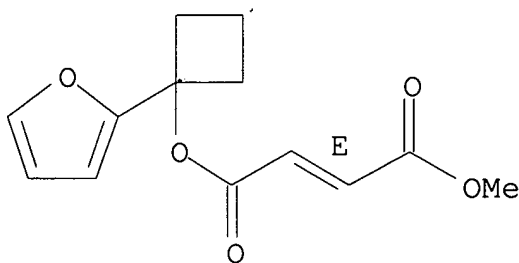
Double bond geometry as shown.



RN 120284-34-6 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclobutyl methyl ester (9CI)
(CA INDEX NAME)

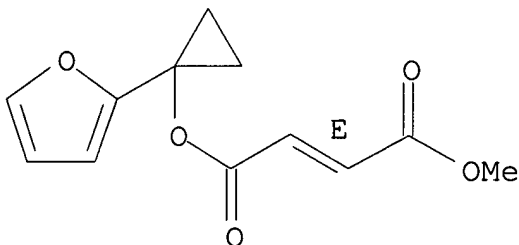
Double bond geometry as shown.



RN 120284-35-7 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopropyl methyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT **120284-32-4 120284-34-6 120284-35-7**

(facilitated transition hypothesis explanation for gem-dialkyl effect)

L6 ANSWER 33 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

use 34/40 instead

1994:700245 Document No. 121:300245 Evidence against the reactive rotamer explanation of the gem-dialkyl effect. Parrill, Abby L.; Dolata, Daniel P. (Carl S. Marvel Lab., Univ. Arizona, Tucson, AZ, 85721, USA). Tetrahedron Letters, 35(40), 7319-22 (English) 1994. CODEN: TELEAY. ISSN: 0040-4039.

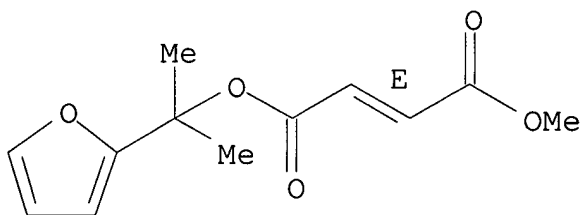
AB Acceleration of intramol. reaction rates with increasing substitution has been known for a long time. The most common explanation used for this phenomenon is the 'Reactive Rotamer Effect' which states that "The ring closure reaction proceeds at a greater rate on geminal (or alkyl) substitution because of the resultant decrease in unprofitable rotamer distribution". This research presents evidence against this explanation and suggests an alternate explanation for the cause of the gem-dialkyl effect.

IT **120284-32-4 120284-34-6 120284-35-7**
(evidence against the reactive rotamer explanation of the gem-dialkyl effect on ring closure kinetics)

RN 120284-32-4 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)-1-methylethyl methyl ester (9CI) (CA INDEX NAME)

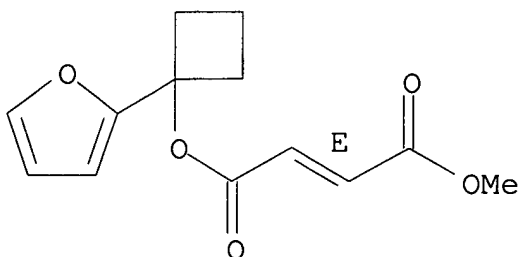
Double bond geometry as shown.



RN 120284-34-6 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclobutyl methyl ester (9CI) (CA INDEX NAME)

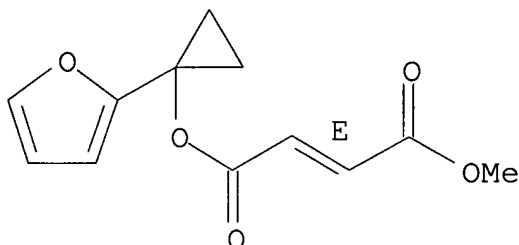
Double bond geometry as shown.



RN 120284-35-7 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopropyl methyl ester
(9CI) (CA INDEX NAME)

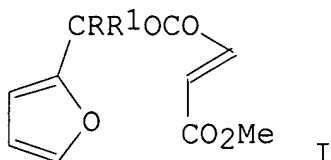
Double bond geometry as shown.



IT **120284-32-4 120284-34-6 120284-35-7**
(evidence against the reactive rotamer explanation of the
gem-dialkyl effect on ring closure kinetics)

L6 ANSWER 34 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
1991:61346 Document No. 114:61346 gem-Dialkyl effect in the
intramolecular Diels-Alder reaction of 2-furfuryl methyl fumarates:
the reactive rotamer effect, the enthalpic basis for acceleration,
and evidence for a polar transition state. Jung, Michael E.;
Gervay, Jacquelyn (Dep. Chem. Biochem., Univ. California, Los
Angeles, CA, 90024, USA). Journal of the American Chemical Society,
113(1), 224-32 (English) 1991. CODEN: JACSAT. ISSN: 0002-7863.
OTHER SOURCES: CASREACT 114:61346.

GI



AB Investigation of the rates of cyclization of a series of substituted
2-furfuryl Me fumarates I [R, R1 = H, Me, Me3C, etc.] has allowed a
detn. of which of the two explanations for the gem-dialkyl effect is
more important. Studies with compds. substituted with
small-membered rings showed that the rate acceleration is due
primarily to the reactive rotamer effect and not to angle
compression (Thorpe-Ingold effect). For example, the
cyclobutyl-substituted compd. I [RR1 = (CH2)3] (II) would experience

a reactive rotamer effect similar to that of the di-Me compd. I (R = R1 = Me) and thus should cyclize relatively rapidly if this effect were dominant. However, due to the small ring, II would have a larger internal angle than other disubstituted derivs. and thus should cyclize even more slowly than I (R = R1 = H) if the angle compression effect were dominant. Since II cyclizes in CD3CN 208 times faster than the dihydrido compd., it is concluded that the reactive rotamer effect outweighs angle compression in detg. the rate of cyclization in this system. The activation parameters for the cyclization of I in CD3CN have been calcd. These data show that the large rate acceleration seen in this system, and the significant lowering of the .DELTA.G.thermod., is due almost entirely to a lowering of the enthalpy of activation .DELTA.H.thermod., and not to a difference in the entropy of activation. The rate enhancements due to the gem-dialkyl effect in this system are much higher than those generally seen in other systems (normally no larger than a factor of 10 for the di-Me case vs. the dihydrido one, but here a ratio of 2100). This discrepancy in rate effects is almost certainly due to the presence of an oxygen atom in the tether of the system next to the affected carbon compared to the all carbon tethers in the other cases. Finally, examn. of the effect of solvents on this reaction reveals a strong acceleration of the cycloaddn. in polar solvents. This solvent effect is explained by the rotation of the most stable conformation of the starting material, the s-trans ester conformation, about the C-O bond to give the higher energy s-cis conformation, which can then cyclize.

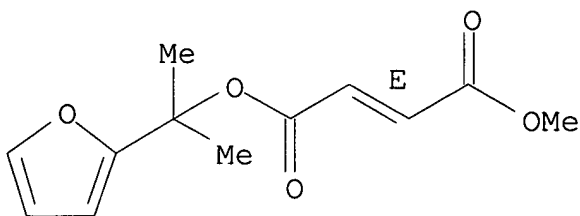
IT **120284-32-4P 120284-33-5P 120284-34-6P**
120284-35-7P 131041-41-3P

(prepn. and intramol. Diels-Alder reaction of)

RN 120284-32-4 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)-1-methylethyl methyl ester
 (9CI) (CA INDEX NAME)

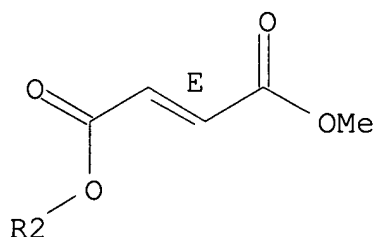
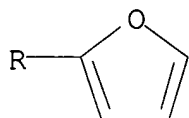
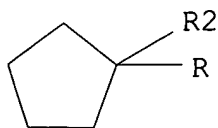
Double bond geometry as shown.



RN 120284-33-5 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopentyl methyl ester
 (9CI) (CA INDEX NAME)

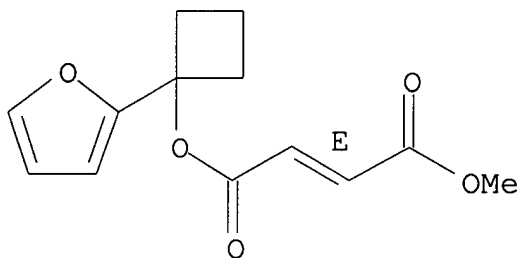
Double bond geometry as shown.



RN 120284-34-6 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclobutyl methyl ester (9CI)
(CA INDEX NAME)

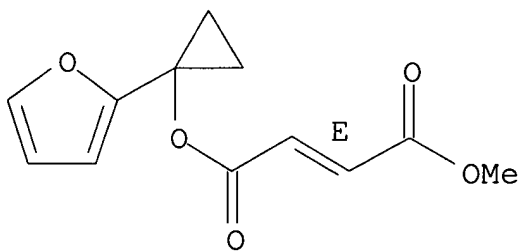
Double bond geometry as shown.



RN 120284-35-7 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopropyl methyl ester (9CI)
(CA INDEX NAME)

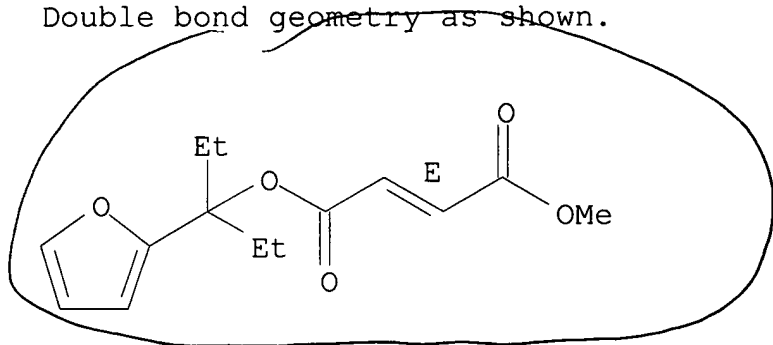
Double bond geometry as shown.



RN 131041-41-3 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-ethyl-1-(2-furanyl)propyl methyl ester
(9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 120284-32-4P 120284-33-5P 120284-34-6P

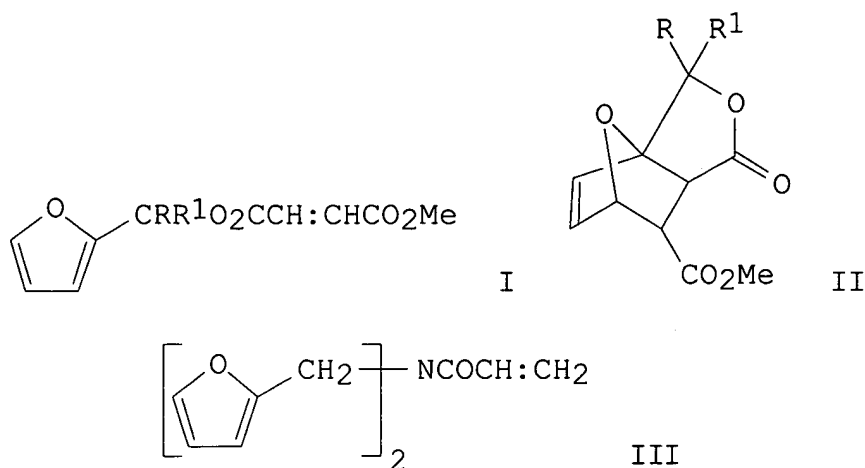
120284-35-7P 131041-41-3P

(prepn. and intramol. Diels-Alder reaction of)

L6 ANSWER 35 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1989:438688 Document No. 111:38688 Solvent effects in intramolecular Diels-Alder reactions of 2-furfuryl methyl fumarates: evidence for a polar transition state. Jung, Michael E.; Gervay, Jacquelyn (Dep. Chem. Biochem., Univ. California, Los Angeles, CA, 90024, USA). Journal of the American Chemical Society, 111(14), 5469-70 (English) 1989. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT 111:38688.

GI



AB Examn. of the effect of solvents of the intramol. Diels-Alder reaction of 2-furfuryl Me fumarates reveals a strong acceleration of the cycloaddn. in polar solvents. Cycloaddn. of the fumarates E-I [R = R1 = H, Me; R = H, R1 = Me; RR1 = (CH2)2, (CH2)3] in toluene-d8, CD3CN, and DMSO-d6, afford the cycloadducts II, with the reaction being slowest in toluene, faster in acetonitrile, and faster again in DMSO. The solvent effect can be quite large in certain cases with krel being as large as 3200. The results for the monomethyl compd. I (R = H, R1 = Me) in a wide variety of solvents indicate a better agreement with the dielec. const. of the solvent rather than other solvent polarity parameters, such as ET. This solvent effect is explained by the rotation of the most stable conformation of the starting material, the s-trans ester conformation, about the C-O bond to give the higher energy s-cis conformation, which can then cyclize to the obsd. products. Since the s-cis conformation and the transition state derived from it have a net dipole due to the overlap of the dipoles of the ester, it is more polar than the starting material and thus would be expected to be stabilized by polar solvents. This is not the case for the intermol. cycloaddn. because the s-cis ester conformation is not required in the transition state. Finally as addnl. evidence for this mechanistic rationale, the analogous tertiary amide III, which would not have this more polar transition state (relative to the starting material), shows essentially no solvent effect in several solvents under similar conditions.

IT **120284-32-4 120284-34-6 120284-35-7**

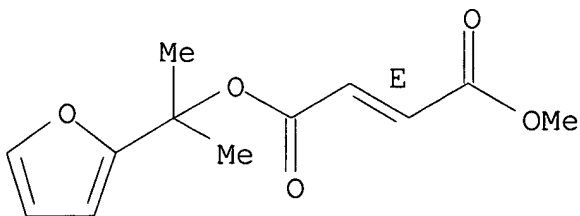
(intramol. Diels-Alder reaction of, kinetics of, solvent effects on)

RN 120284-32-4 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)-1-methylethyl methyl ester

(9CI) (CA INDEX NAME)

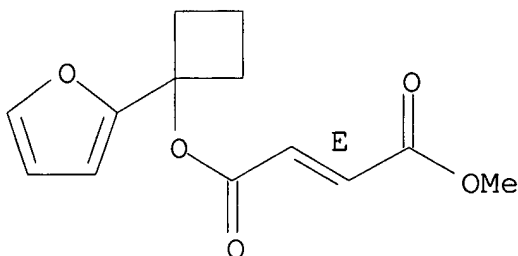
Double bond geometry as shown.



RN 120284-34-6 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclobutyl methyl ester (9CI)
(CA INDEX NAME)

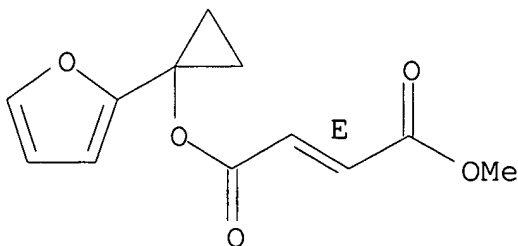
Double bond geometry as shown.



RN 120284-35-7 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopropyl methyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 120284-32-4 120284-34-6 120284-35-7

(intramol. Diels-Alder reaction of, kinetics of, solvent effects on)

L6 ANSWER 36 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1989:191964 Document No. 110:191964 Studies on the effects of substituents on rate enhancements in intramolecular Diels-Alder reactions: reasons for the gem-dimethyl effect. Jung, Michael E.; Gervay, Jacquelyn (Dep. Chem. Biochem., Univ. California, Los Angeles, CA, 90024, USA). Tetrahedron Letters, 29(20), 2429-32 (English) 1988. CODEN: TELEAY. ISSN: 0040-4039. OTHER SOURCES: CASREACT 110:191964.

AB Comparison of the rates of cyclization of a series of 2-furfuryl Me furmarates leads to the conclusion that the gem-dimethyl effect is due primarily to higher population of reactive rotamers.

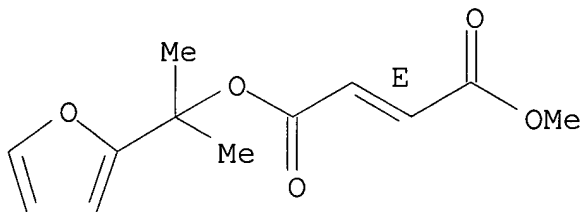
IT **120284-32-4P 120284-33-5P 120284-34-6P**
120284-35-7P

(prepn. and cyclization of, kinetics of)

RN 120284-32-4 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)-1-methylethyl methyl ester
(9CI) (CA INDEX NAME)

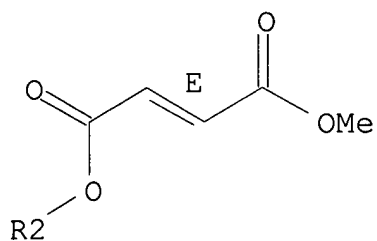
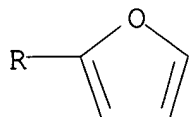
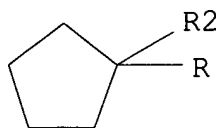
Double bond geometry as shown.



RN 120284-33-5 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopentyl methyl ester
(9CI) (CA INDEX NAME)

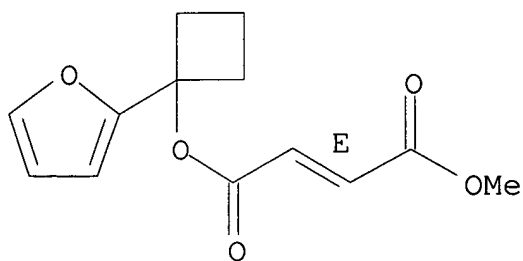
Double bond geometry as shown.



RN 120284-34-6 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclobutyl methyl ester (9CI)
(CA INDEX NAME)

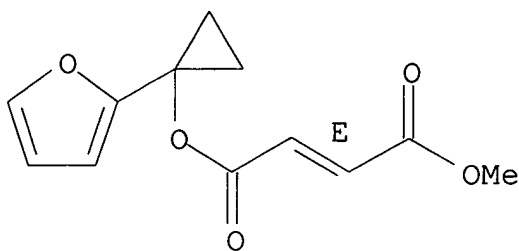
Double bond geometry as shown.



RN 120284-35-7 ZCAPLUS

CN 2-Butenedioic acid (2E)-, 1-(2-furanyl)cyclopropyl methyl ester
(9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT **120284-32-4P 120284-33-5P 120284-34-6P**
120284-35-7P

(prepn. and cyclization of, kinetics of)

L6 ANSWER 37 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
 1987:177067 Document No. 106:177067 .alpha.-Fluoroacrylate esters and
 their polymers. Heumeller, Rudolf; Siegemund, Guenter; Groh,
 Werner; Wieners, Gerhard; Herbrechtsmeier, Peter (Hoechst A.-G.,
 Fed. Rep. Ger.). Eur. Pat. Appl. EP 203462 A2 19861203, 26 pp.
 DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE.
 (German). CODEN: EPXXDW. APPLICATION: EP 1986-106573 19860514.
 PRIORITY: DE 1985-3518893 19850525; DE 1986-3602275 19860125; DE
 1986-3614695 19860430.

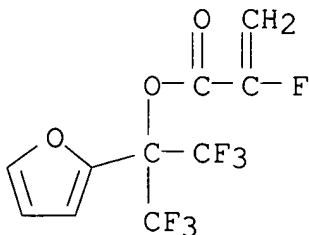
AB Esters CH₂:CFCO₂C(CF₃)₂R (I) (R = H, D, halo, alkyl, aryl are prepd.
 and polymd. to non-cryst., transparent polymers. CHF(CO₂Me)₂ was
 hydroxymethylated by HCHO and treated with HCl and NH₃ to give
 CH₂:CFCO₂NH₄ which was converted to the chloride and esterified with
 HOCH(CF₃)₂. Polymn. in the presence of AIBN and BuSH gave a
 polymer with mol. wt. 150,000, glass temp. 108.5.degree., melt index
 (230.degree., 3.8 kg) 8 g/10 min, n 1.355, and decompn. temp.
 250.degree..

IT **107843-21-0P**

(prepn. of)

RN 107843-21-0 ZCAPLUS

CN 2-Propenoic acid, 2-fluoro-, 2,2,2-trifluoro-1-(2-furanyl)-1-
 (trifluoromethyl)ethyl ester (9CI) (CA INDEX NAME)

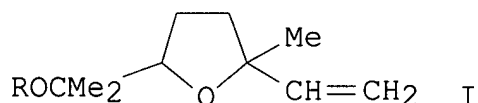


IT **107843-21-0P**

(prepn. of)

L6 ANSWER 38 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN
 1984:611503 Document No. 101:211503 Tetrahydrofuran esters. (Hasegawa,
 T., Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 59130879 A2
 19840727 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 1983-5220 19830118.

GI



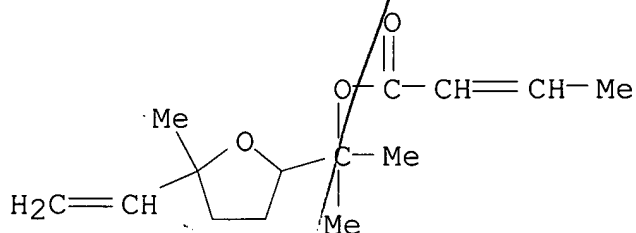
AB Esters I (R = acyl), useful as long-acting perfumes for cosmetics and flavoring agents for food, were prepd. by treating I (R = H) (II) with carboxylic acids or their reactive derivs. Thus, 170 g II was added to a mixt. of 156 g (EtCO)₂O and 3 g p-MeC₆H₄SO₃H at 30-40.degree. over 1 h and the mixt. heated at 40-50.degree. for 3 h to give 190 g I (R = EtCO). Similarly prepd. were I (R = Bz, butyryl, valeryl, isovaleryl).

IT **93182-89-9P 93182-90-2P**

(prepn. of, for perfume and food flavoring)

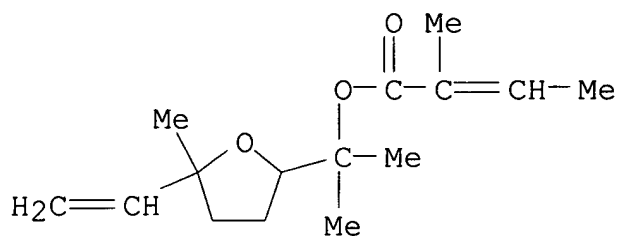
RN 93182-89-9 ZCAPLUS

CN 2-Butenoic acid, 1-(5-ethenyltetrahydro-5-methyl-2-furanyl)-1-methylethyl ester (9CI) (CA INDEX NAME)



RN 93182-90-2 ZCAPLUS

CN 2-Butenoic acid, 2-methyl-, 1-(5-ethenyltetrahydro-5-methyl-2-furanyl)-1-methylethyl ester (9CI) (CA INDEX NAME)

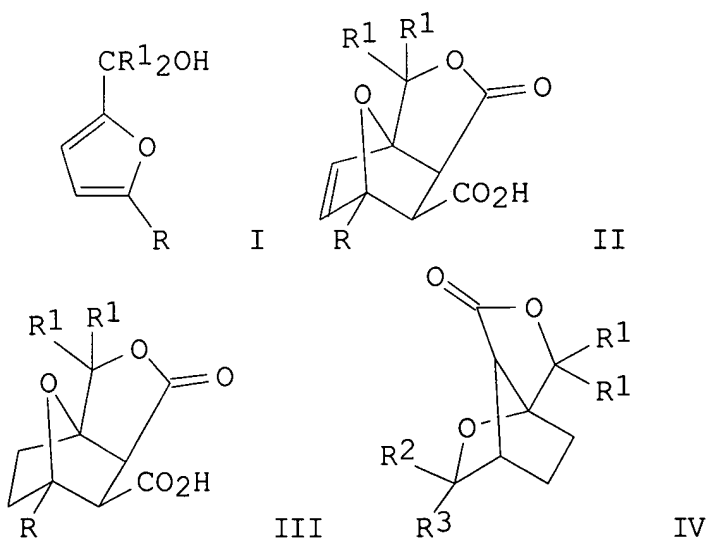
IT **93182-89-9P 93182-90-2P**

(prepn. of, for perfume and food flavoring)

L6 ANSWER 39 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1981:604164 Document No. 95:204164 A synthetic method for novel 1,2,3-trisubstituted cyclopentane derivatives, 1-(hydroxymethyl)-3-methoxy-2-oxabicyclo[2.2.1]heptane-7-carboxylic lactones. Imagawa, Takeshi; Nakagawa, Tsunefumi; Matsuura, Kazuyuki; Akiyama, Tetsuo; Kawanisi, Mituyosi (Dep. Ind. Chem., Kyoto Univ., Kyoto, 606, Japan). Chemistry Letters (7), 903-4 (English) 1981. CODEN: CMLTAG. ISSN: 0366-7022. OTHER SOURCES: CASREACT 95:204164.

GI



AB The reaction of furfuryl alcs. I ($R, R1 = H, H; Me, H; H, Me$) with maleic anhydride gave the lactones II via esterification and intramol. cycloaddn. reactions. Atm. hydrogenation of II gave III,

whose electrolysis in MeOH contg. NaOMe gave IV (R2 = MeO, R3 = R; R2 = R, R3 = MeO), potential intermediates for the synthesis of iridoid monoterpenes.

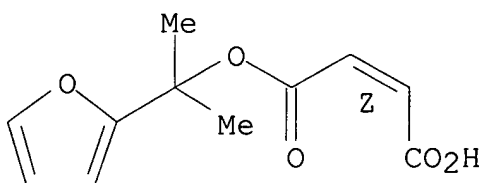
IT **79727-50-7P**

(prepn. of)

RN 79727-50-7 ZCAPLUS

CN 2-Butenedioic acid (2Z)-, mono[1-(2-furanyl)-1-methylethyl] ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT **79727-50-7P**

(prepn. of)

L6 ANSWER 40 OF 40 ZCAPLUS COPYRIGHT 2005 ACS on STN

1971:10340 Document No. 74:10340 Gas-liquid chromatography of some natural coumarins and coumarin fractions from plants. Kuznetsova, G. A. (Bot. Inst. im. Komarova, Leningrad, USSR). Khimiya Prirodnikh Soedinenii, 6(4), 406-12 (Russian) 1970. CODEN: KPSUAR. ISSN: 0023-1150.

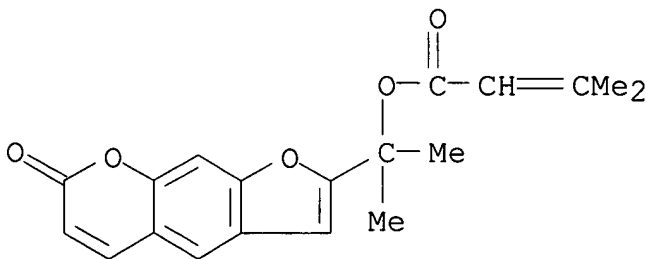
AB The relative retention times for gas-liq. chromatog. of 32 coumarin derivs. were detd. Ostol, imperatorin, isoimperatorin, marmesin, hydroxypeucedanin hydrate, Deltoin, and pranchimgin were isolated from Prangos hissarica.

IT **30667-15-3**

(chromatog. of)

RN 30667-15-3 ZCAPLUS

CN Crotonic acid, 3-methyl-, ester with 2-(1-hydroxy-1-methylethyl)-7H-furo[3,2-g][1]benzopyran-7-one (8CI) (CA INDEX NAME)



LEE 10/671,948

Page 128

IT 30667-15-3
(chromatog. of)